THE DOCK & HARBOUR AUTHORITY

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Editorial

Southampton Docks Extension Scheme.

Southampton, with its short rail journey of London, has in latter years become the premier passenger port in England for the Atlantic passenger trade, and in order to maintain the port in its present position and to prepare it for future expansion in trade and to berth the largest liners afloat, it was decided to carry out a big extension scheme.

The project, as planned, allows for a new quay wall which will be 7,000-ft. long when completed and the first big task to be undertaken was the reclamation of over 400 acres of mudland in the bay of the river Test—a vast undertaking which is proceeding satisfactorily and according to plan.

The land reclaimed will be utilised for building dock premises, sheds, sidings, etc., and part will be reserved for development of industrial sites.

A new approach channel has also been cut and when completed will join the existing deep water channel. This approach channel will be 600-ft. wide and will have a depth of 35-ft. at L.W.O.S.T.

Work on the quay wall is proceeding at a good pace and is being built of concrete monoliths, each 45-ft. square, the height varying from 80-ft. to 105-ft. To form the 7,000-ft. lineal quay wall, 146 monoliths are required, 89 of which have already been sunk to their final depth.

It is expected that the first 1,000-ft. of berthage space will be opened in the autumn of this year and at the present time 1,800-ft. of quay wall has been completed.

Another important development in the extension scheme is the construction of a graving dock at Millbrook. This dock, which will be the largest in the world, is designed to have a length of 1,200-ft. with a width at entrance of 135-ft. and a width elsewhere at cope level of 165-ft. There will be a depth over keel blocks of 45-ft. at H.W.N.T. and 48½-ft. at H.W.S.T. The depth over sill at H.W.N.T. will be 47-ft. and at H.W.S.T. 50½-ft.

This new graving dock, which was laid down for the purpose of accommodating the new Cunard liner, work on which has been stopped, will, together with the new quayage being built, undoubtedly attract more shipping to the Port of Southampton and should in due course amply reward the authorities for this vast project which they have undertaken.

An illustrated article giving details of this new extension scheme appears on another page and also forms the supplement for this month.

Improvements to Liverpool Docks.

The Mersey Docks and Harbour Board have just completed, after a period of two years, a scheme for the modernisation of the Liverpool Central Docks at a cost of £1,000,000.

The scheme involved the widening and deepening of passages connecting the docks and it is now possible for comparatively large vessels to make their entrance at the Gladstone Dock in the mouth of the Mersey at any state of the tide and to go right through inside the southerly Docks to Prince's Dock, a distance of 3¾ miles.

Included in the scheme was the construction of a new wet dock with transit sheds, quays, roads, etc., the reconstruction of a graving dock and the enlarging of the entrance of No. 2 graving dock.

The new wet dock, which is known as the Trafalgar Dock, has a length of 3,231 lineal ft. and is 200-ft. wide. It is entered by a 60-ft. passage and has a depth of water over sill of 26-ft. 4-in. on spring tides.

On the East and West quays of the Trafalgar Dock there have been built single storey transit sheds, one shed being 885-ft. long and 55-ft. wide and the other 1,310-ft. long and 55-ft. wide. These two sheds will give a total floor area of 13,316 square yards.

Blyth Harbour Commission Celebrates its Jubilee.

Congratulations to the Blyth Harbour Commission on the celebration of their Jubilee, which was reached on June 18th. The Commission can look back with satisfaction on the progress which has been made in the course of its 50 years of existence.

When the Commission first came into existence in 1882 the formation of a navigable channel was the first consideration as everything in the port had been practically at a standstill for some years previously.

The Port of Blyth relies mainly upon its coal exports and the Commission have at various times improved and built coaling staiths to meet the ever-increasing coal trade.

In the period of 50 years that the Commission has been in existence 151,000,000 tons of coal have been shipped and the total amount of money spent on various improvements, new works, dredging, etc., is about £1,500,000. Dredging has always been the foremost necessity at Blyth and in the course of the 50 years 24,560,000 tons of material have been dredged from the river.

Blyth, in common with other ports, is suffering from the present depression in trade, but the Commission are continually keeping their facilities up to date and will undoubtedly continue to show steady progress when times are normal.

Electrical Coal Conveyors at Ayr Harbour.

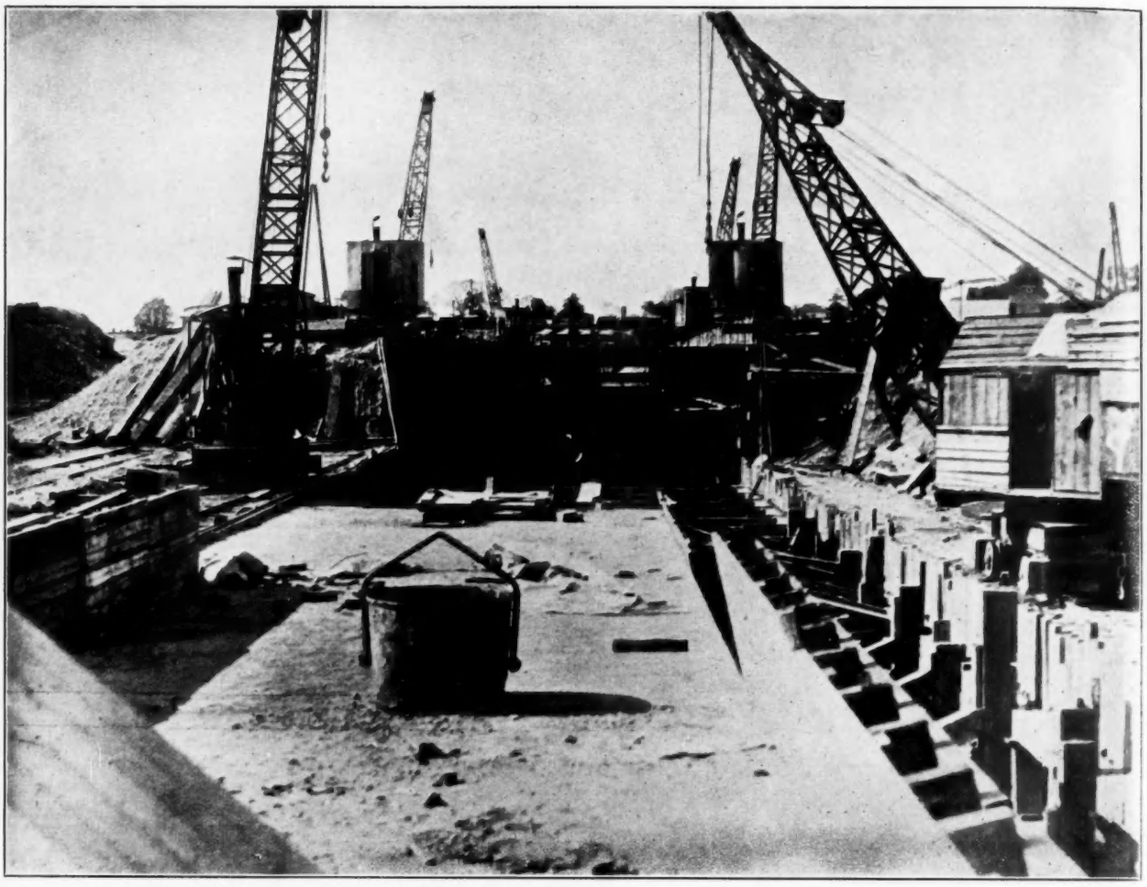
An official trial has been given the first of the three electrical coal conveyors now being erected at Ayr Harbour by the London, Midland and Scottish Railway Company, who are the proprietors of this harbour. At the official trial the steamer "City of Dublin" was loaded, and among those present at the trial were representatives of colliery companies, shipping agents, traders at the harbour, and L.M.S. officials. The conveyor occupies a site on the east side of the dock. It is capable of handling 600 tons of coal per hour, and is specially designed to minimise the breakage of coal. It is controlled by one man placed on the front of the boom with a full view of the entire loading arrangements. A second conveyor will be erected on the north side of the harbour, and a movable conveyor is also to be constructed at the dock. The complete electrification of the harbour plant is to be carried out, and the total estimated cost of the improvements will be about £100,000.

Tees Conservancy Commission.

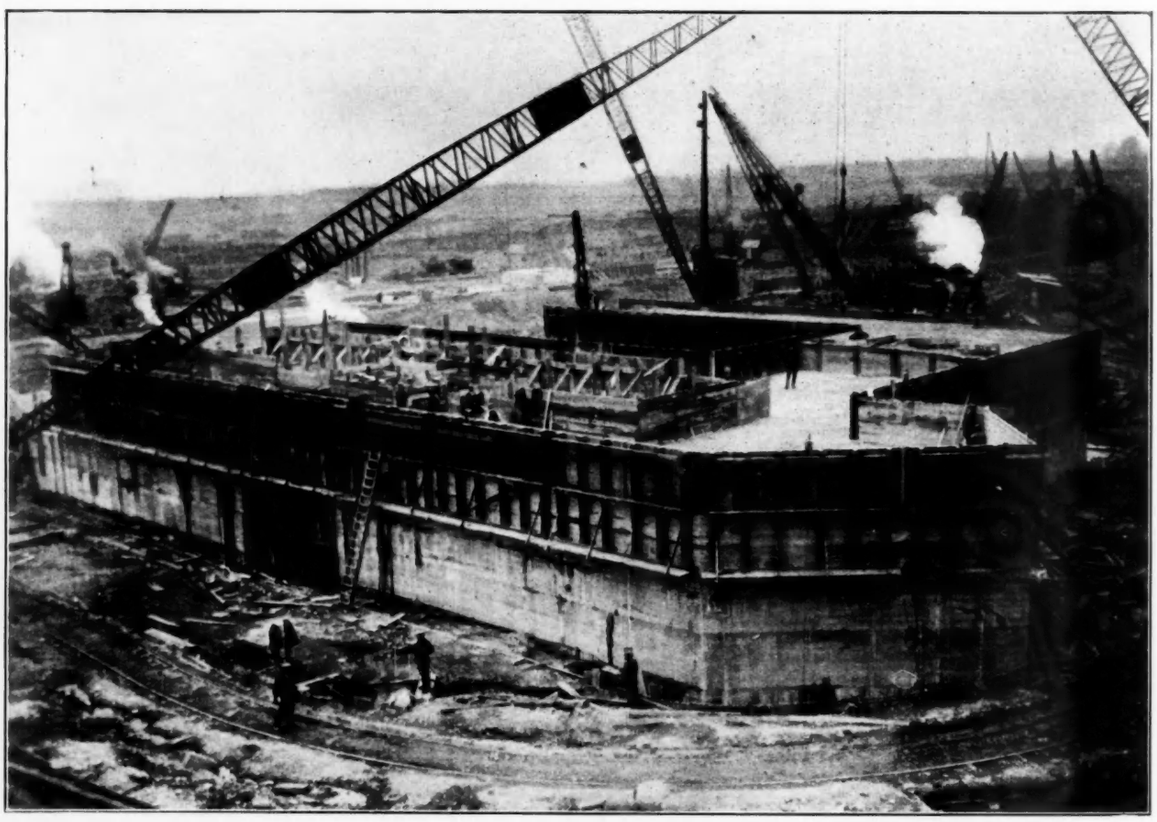
The report issued by the Tees Conservancy Commission shows that imports in May were down in comparison with April by nearly 5,000 tons. The total import was 7,738 tons compared with 12,572 tons in April. The heaviest decline occurred in semi-finished steel, discharges of crude sheet bars, billets, blooms and slabs being 6,258 tons compared with 10,420 tons in April. Pig iron imports fell from 1,584 tons to 860 tons. Finished steel products at 620 tons compared with 568 tons in April.

Good progress has been made with the improvement of the equipment of the London and North Eastern Railway Company's dock at Middlesbrough, the complete scheme for which will cost about £200,000. The work which involves the replacement of old cranes by modern ones capable of handling cargo with greater expedition, was put in hand in April last year. Some 39 old cranes have been dismantled, one being re-erected on another quay, and when the scheme is completed the dock equipment will consist of 50 cranes of which 46 are new cranes. The dock will possess 35 cranes of 3 tons capacity, five of 5 tons capacity, nine of 10 tons and a hydraulic crane of 30 tons capacity. Excellent results have been achieved by the new cranes installed and improved despatch in the loading of cargoes secured.

Southampton Docks Extension Scheme



Timbering Supports for the Wall of the New Graving Dock. [Photo E. H. Buckley, Southampton.



Another View of the Caisson Camber. [Photo E. H. Buckley, Southampton.

Southampton Docks Extension Scheme

First 1,000-ft. of Berthage Space expected to be Opened in the Autumn

Progress Work on Sheds Nos. 1 and 2. [Photo E. H. Buckley, Southampton.

The Docks Extension Scheme.

So well is the work on the docks extension scheme at Southampton progressing that there is little doubt but that the first 1,000-ft. of berth will be open in the autumn of this year, as originally arranged.

The extension scheme, which is one of the largest undertaken in recent years, involved the reclamation of more than 400 acres of mudland in the bay of the River Test, the extremities being the Royal Pier and Millbrook Point. On this will be built dock premises, sheds, sidings, etc., while a part will be reserved for development as industrial sites.

In planning the new docks the Southern Railway engineers have laid their designs so that the largest vessels afloat will be able to be accommodated alongside the new quay wall, which, when completed, will be 7,000-ft. long. At present many of the world's largest liners use Southampton as their British port, and they will be able to use the new quays as easily as they now make use of the Ocean Dock.

The building of a jetty is contemplated some time after the completion of the work at present in hand, and when this is completed the port will be enlarged to the extent of providing an additional 15,500 lineal feet of berthing.

The first two portions of the scheme involved the reclamation of about 415 acres of mudland. This work has proceeded according to plan and no special difficulties have been met with in the course of the last few months.

Dredging is now taking place in connection with the approach channel which will join the existing deep water channel at a point opposite Ocean Dock with the new quays. This is being dredged 600-ft. wide and to a depth of 35-ft. L.W.O.S.T. Such good progress has been made with this part of the work that in front of the new quay wall the dredging has been completed to the final depth over a length of about 3,000-ft. Near the eastern end of the quay wall the channel will be dredged wide enough for the largest ship to turn. The jetty which it is proposed to build will have a depth of 45-ft. L.W.O.S.T. along both sides, and the channel southwards from it will serve as an approach to the new graving dock.

The new reclamation vessel which the James Dredging Co. have ordered for the work is expected to arrive at Southampton at the beginning of July. She will be named "Foremost Scot," being a sister ship to "Foremost Chief."

The whole of the reclamation work will be done by the pumping ashore of the harder materials dredged from the berths and approach channel. It is estimated that about 20,000,000 tons of spoil have to be dredged in all, and of this

[Photo E. H. Buckley, Southampton.
A Dragline Excavator clearing the way for the Giant Caisson Camber.

[Photo E. H. Buckley, Southampton.
Fitting the Sluices between the Main Extension Bank and the New Graving Dock Bank.

Southampton Docks Extension Scheme—continued

about half is to be pumped behind the embankments for reclamation. The reclamation embankments are made of about three million tons of gravel which has been dredged. Two narrow embankments have been made of chalk brought from the Southern Railway's quarries at Micheldever.

Good progress is being maintained in the construction of the new quay wall, which work is in the hands of Messrs. Sir Robert McAlpine, Ltd. The quay wall is being built of concrete monoliths each 45-ft. square and of varying heights from 80-ft. to 105-ft. Of the 146 monoliths required to form the 7,000-ft. lineal of quay wall, 89 have now been sunk to their final depth. Some of the deep monoliths weigh over 7,000 tons and in order to get them down to their proper position it has been found necessary to add as much as 4,500 tons of kentledge. The quay wall has now been completed over a length of 1,800-ft.

The work of equipping the reclaimed land as dock premises is proceeding apace and the construction of the first pair of passenger and cargo sheds is well advanced. These sheds are 150-ft. wide and have a total length of 1,660-ft.

Vehicular roads will be constructed behind the sheds on the main quay and between the two rows of sheds on the jetty, and these will connect with the existing highways of the town. The road leading from the Western Esplanade on to the new estate is practically completed over a length of more than 400 yards, and water mains, electricity mains, etc., are being installed.

Railway approaches are being made at both ends of the estate. At the western end the line will connect with the main southern line at Millbrook Station, and by this route passenger and goods trains will be able to run direct to the sheds or the sidings behind the sheds. A rail connection has been made at the eastern end to link up the new docks with the old.

The construction of culverts to deal with storm water has been a not inconsiderable part of the scheme. A number of storm water drains around the foreshore used to discharge on to the mudlands which are now being reclaimed. These drains have been gathered up into one large culvert 7-ft. in diameter which has been so constructed around the shore as to discharge outside the new embankment on the southern limit of the reclamation area. Water will discharge through this culvert under gravity, but a pumping station equipped with powerful electric pumps has been constructed at the seaward end of the culvert so that water can be dealt with in large quantities in time of severe storm or unusually high tide. The total length of culverts constructed is about two miles.

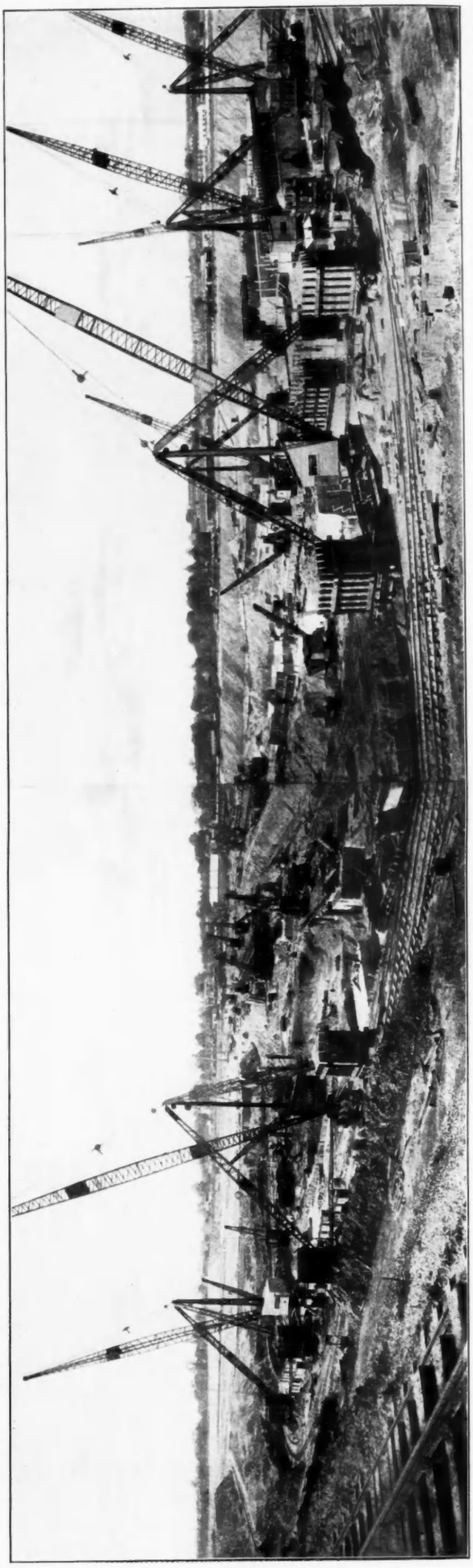
One of the most important sections of the extension scheme is the construction at Millbrook of a graving dock which will be the largest in the world. The dock will have a length of 1,200-ft., with a width at entrance of 135-ft. and a width elsewhere at cope level of 165-ft. The depth over keel blocks at H.W.N.T. will be 45-ft. and the depth over keel blocks at H.W.S.T. 48½-ft. The depth over cill at H.W.N.T. will be 47-ft. and at H.W.S.T. 50½-ft.

The contractors for the graving dock are Messrs. John Mowlem and Co., Ltd., of London, and Edmund Nuttall, Sons and Co., Ltd., of Manchester, acting jointly.

As is usual in the case of dry dock construction the heaviest and most intricate work is situated at the entrance and in the vicinity of the pumping house. The contractors have concentrated their energies in the locality of this work, while at the same time energetically pushing forward the construction of the side walls of the dock itself.

The entrance to the dock will be closed by a double-faced sliding caison, so that water can be either excluded or impounded. In addition to the inside and outside stops against which the caisson will normally operate an emergency stop at the entrance is being provided so that the dock can be pumped out when it is necessary to examine or repair the sliding ways or inside stops. The pumps have been so designed that it will be possible to empty the dock in four hours from the level of H.W.O.S.T. when no ship is occupying the dock. Two 10-ton electric capstans will be installed for breast tackles on each side and one 30-ton warping capstan at the dock head. A 50-ton electric travelling crane will be provided on the west side of the dock. At its maximum radius for 50-ton load of 110-ft. the crane will plumb 8-ft. beyond the centre line of the dock. A 10-ton electric travelling crane will be provided on the east side of the dock. With a maximum radius of 60-ft. it will reach to within 35-ft. of the centre line of the dock. There will be a light mobile crane for use on the floor of the dock.

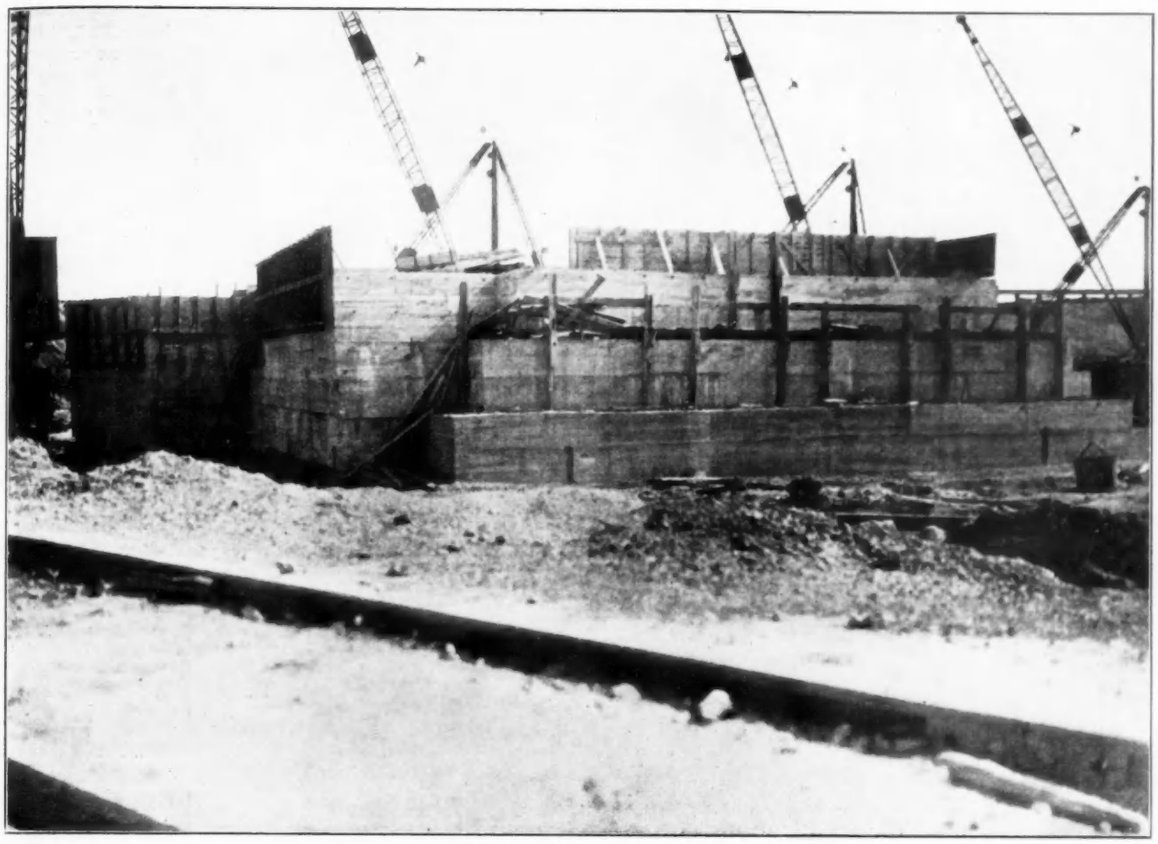
The entrance walls, caisson, camber walls, east and west wing walls are well advanced in construction, and the side walls of the dock have been battened up over a length of rather more than half that of the dock. The dumpling excavation between the main wall is well in hand. The fixing of penstocks and filling and discharge culverts has been begun, as has also the excavation of the pumping chamber area.



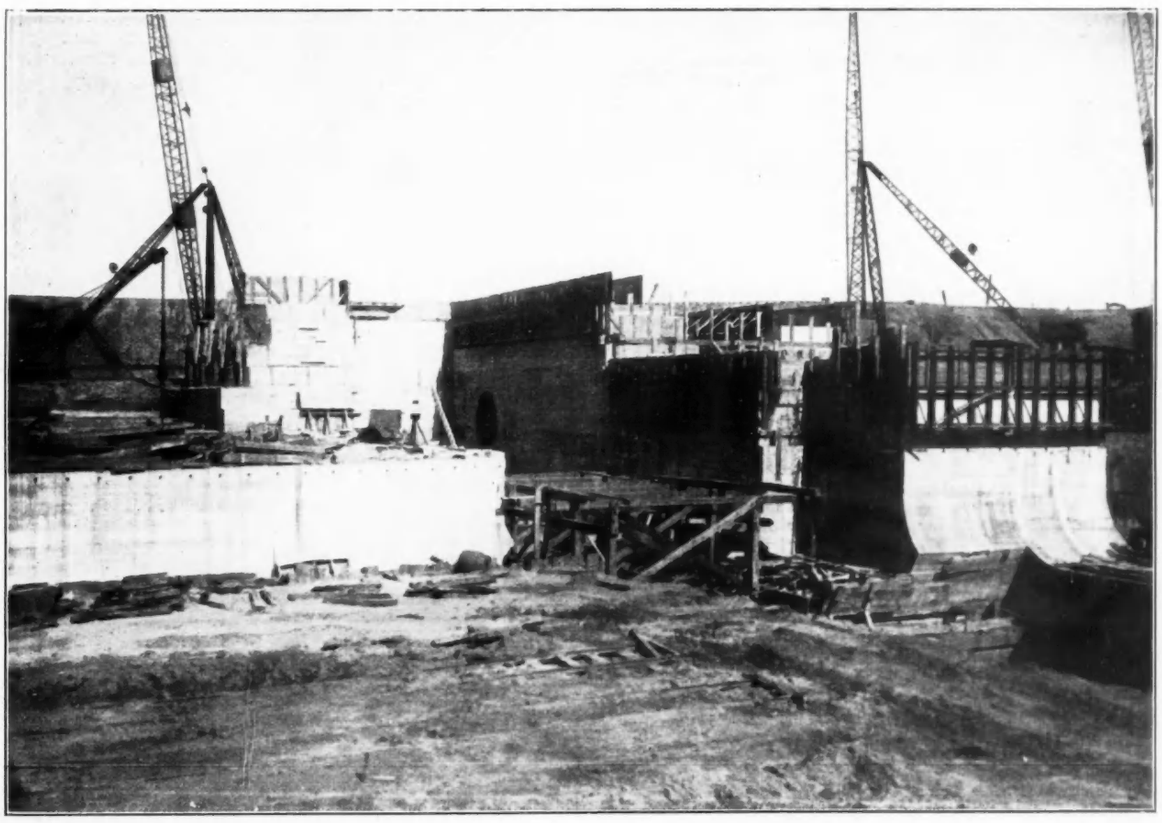
[Photo E. H. Buckley Southampton

General view of the progress on the new dock at Southampton, looking North-West.

Southampton Docks Extension Scheme



Exterior View of the Progress of the Caisson Camber. [Photo E. H. Buckley, Southampton



[Photo E. H. Buckley, Southampton.

The Giant Caisson Camber into which the Caisson Gate will glide when the Dock is required for use.

General view of the progress on the new dock at Southampton, looking North-West.

Aden Port Trust.

The returns for the month of March, 1932, of shipping using the port were as follows:—

	No.	Tonnage
Merchant Vessels over 200 tons ...	127	538,071
,, ,, under 200 tons ...	7	823
Government Vessels	13	26,851
Dhows	113	4,043
PERIM.		
Merchant Vessels over 200 tons ...	17	62,318

TRADE OF THE PORT.

Article.	Unit.	Imports.		Exports.	
		Quantity.	Value Rs.	Quantity.	Value Rs.
Coal	Tons	5,585	1,64,568	0	0
Coffee	Cwts.	12,863	4,16,638	8,177	3,57,349
Grain, Pulse and Flour	,,	40,128	2,17,329	26,250	1,38,966
Gums and Resins	,,	6,206	94,428	3,583	68,746
Hardware	—	0	18,250	0	16,541
Hides, raw	No.	4,112	5,035	6,966	12,059
Oil, Fuel	Tons	55,263	16,57,890	0	0
,, Kerosene	Gls.	28,547	20,660	6,752	5,056
,, Petrol	,,	26,215	32,847	4,705	5,376
Salt	Tons	0	0	36,970	4,22,619
Seeds	Cwts.	2,742	18,880	1,491	11,456
Skins, raw	No.	250,930	1,24,263	381,280	3,53,429
Sugar	Cwts.	30,007	2,00,127	14,611	98,100
Textiles—					
Piece Goods, Grey	Yds.	4,338,820	6,80,247	3,567,210	5,71,530
,, ,, White	,,	706,620	1,42,400	356,005	77,236
,, ,, Printed or Dyed .	,,	997,478	2,42,653	922,020	2,52,114
Twist and Yarn	Lbs.	161,440	79,505	159,194	79,990
Tobacco, Unmanufactured	,,	460,404	75,665	633,640	1,02,915
,, Manufactured	,,	61,236	53,747	19,600	14,765
Other Articles	No. of Pkges.	57,224	9,84,335	23,484	3,77,105
Treasure, Private	—	0	3,53,097	0	3,82,075
Total ...	—	—	55,82,564	—	33,47,427

The number of merchant vessels over 200 tons that used the port in March, 1932, was 127 as compared with 117 in the corresponding month last year and the total tonnage was 538,000 as compared with 471,000.

Excluding coal, salt, fuel oil and military and naval stores and transhipment cargo, the total tonnage of imports in the month was 9,400 and of exports 5,600 as compared with 8,600 and 5,800 respectively for the corresponding month last year.

The total value of imports, excluding Government stores, was Rs. 55,83,000/- as compared with Rs. 48,34,000/- for March, 1931, and of exports Rs. 33,47,000/- as compared with Rs. 31,48,000/-.

The total value of both imports and exports together was Rs. 89,30,000/- as compared with Rs. 79,82,000/- for the corresponding month last year.

Imports during the month were above those for March, 1931, in the case of coffee, gums and resins, hides (raw), seeds, sugar, piece goods (white and printed or dyed), tobacco (unmanufactured and manufactured), and below in the case of grain, pulse and flour, hardware, skins (raw), piece goods (grey), twist and yarn and treasure (private).

Exports were above those for March, 1931, in the case of coffee, hardware, seeds, sugar, piece goods (white and printed or dyed), tobacco (unmanufactured) and treasure (private); and below in the case of grain, pulse and flour, gums and resins, hides (raw), skins (raw), piece goods (grey), twist and yarn and tobacco (manufactured).

The Port of New Orleans

The business of the port of New Orleans continued to show substantial improvement during the month of April. Figures compiled and released by the Dock Board disclose that 200 seagoing vessels, having a total gross tonnage of 868,050 tons arrived during the month.

Vessels using the public wharves had a total tonnage of 689,511 tons. Cargo paying tollage amounted to 289,417 tons, an increase of 39,701 tons. During the month, 1,100,882 bunches of bananas were unloaded by the Board's conveyors.

Many commodities moving over the port's wharves showed marked increases. Among the imports, non-metallic minerals increased 134,483 tons; vegetable food products increased 26,035 tons and textiles and miscellaneous commodities increased 694 tons and 223 tons respectively. Among the exports the largest increase was in vegetable food products which increased 35,260 tons. Textiles and ores, metals and their manufactures exported increased 12,872 tons and 2,198 tons respectively.

The Inner Harbour Navigation Canal was again the centre of great activity. During the month, 1,141 vessels having a total tonnage of 391,889 tons used this facility.

There was a substantial increase in arrivals of inland watercraft over 25 tons. During the month, 367 vessels having a total tonnage of 149,352 tons arrived in port, being an increase of 13 vessels and 10,477 tons over April, 1931.

Of the 200 seagoing vessels which arrived during the month, 119, or more than 59 per cent., were under American registry. These American ships represented more than 64 per cent. of the total gross tonnage. Norway was second in number of ships and third in tonnage, while Honduras was third in number of ships and Great Britain second in tonnage.

Following is a tabulation, showing nationality, number of ships and total tonnage of seagoing vessels which arrived during the month:—

Nationality.	No. of Vessels.	Gross Tonnage.
American	119	557,616
British	15	80,463
Brazilian	2	8,656
Belgian	1	5,086
Danish	4	13,449
Dutch	3	17,801
German	4	21,343
Honduran	18	54,425
Italian	3	18,947
Japanese	2	11,714
Latvian	1	3,002
Nicaraguan	3	1,680
Norwegian	21	60,462
Swedish	4	13,406
	200	868,050

The Port of New York

Latest Data issued by the Bureau of Commerce

Foreign Trade at the Port of New York.

THE value of exports and imports at the Port of New York, in March, 1932, amounted to $115,349,000, as compared with $187,140,000 for the same month last year, a decline of 38 per cent. Exports were $48,261,000, a decline of 44 per cent., and imports $67,088,000, a drop of 34 per cent.

	March 1932 $	March 1931 $	Net Change Amount $	Net Change Per Cent.
Exports	48,261,000	86,014,000	—37,753,000	—43.9
Imports	67,088,000	101,126,000	—34,038,000	—33.6
Exports and Imports	115,349,000	187,140,000	—71,791,000	—38.4

For the three months ending March, 1932, the value of foreign trade at New York amounted to $340,553,000, which is 37 per cent. under that of the corresponding period last year.

The volume of foreign trade at the Port of New York during the calendar year 1931, according to a recent report of the United States Shipping Board, amounted to 18,530,000 long tons, and was equal to 25 per cent. of that of the whole United States. While the volume of foreign trade at the Port of New York in 1931 was 18 per cent. under that of the previous year, the decline for all ports in the country was 21 per cent.

The exports were 5,968,000 tons, a decline of 1,613,000 tons or 21 per cent. of the previous year, and the imports 12,562,000 tons, a drop of 2,335,000 tons, equal to 16 per cent. It will be noted that the volume of imports at New York is approximately twice that of exports, and that the decline is greatest in the latter. When the volume of foreign trade for the whole country is considered, we find that exports and imports are nearly equally divided, and that the greatest decline is in the imports.

VOLUME OF FOREIGN TRADE
(Long Tons)

EXPORTS AND IMPORTS	1930	1931	Net Change Amount	Net Change Per Cent.
United States	95,465,000	75,601,000	—19,864,000	—20.8
New York	22,478,000	18,530,000	—3,948,000	—17.6
Per cent. N.Y. of U.S. ...	23.5	24.5		
EXPORTS				
United States	46,782,000	39,919,000	—6,863,000	—14.7
New York	7,581,000	5,968,000	—1,613,000	—21.3
Per cent. N.Y. of U.S. ...	16.2	15.0		
IMPORTS				
United States	48,683,000	35,682,000	—13,001,000	—26.7
New York	14,897,000	12,562,000	—2,335,000	—15.7
Per cent. N.Y. of U.S. ...	30.6	35.2		

Vessel Movements in Foreign Trade.

The number of entrances and clearances of vessels in foreign trade at the Port of New York during the month of April, 1932, were 10 per cent. lower than for the same period last year.

	April, 1932 No. of Vessels	April, 1932 Vessel Tonnage	April, 1931 No. of Vessels	April, 1931 Vessel Tonnage
Entrances ...	447	2,258,152	496	2,538,201
Clearances ...	463	2,303,683	521	2,656,992

Steamship Sailings.

The number of sailings in foreign service during April total about 10 per cent. under the number reported for that month last year. Whereas April sailings to foreign countries were at an approximate rate of 13 per day in 1931, this year's rate averages 11 per day.

No great changes were reported for the month in the domestic trade routes other than a lesser number of the Hudson River sailings, which, however, will increase from now on as the summer season approaches.

At a time when sailing schedules are being curtailed everywhere, it is interesting to note that on Saturday, April 2nd, a total of 73 vessels cleared from the Port of New York. This total included 32 in foreign service, of which 6 were direct to the United Kingdom, 2 to Baltic ports, 2 to Rotterdam and Antwerp, 1 to Hamburg-Bremen, 2 to Italy, 1 to Adriatic ports, 1 to Rio de Janiero-River Plate, 8 to Caribbean-Mexican ports and 3 tankers.

The 41 domestic sailings included 5 direct to the Pacific Coast, 8 to South Atlantic and Gulf ports, 5 tankers and 1 coal carrier.

Commerce at Port Newark.

The amount of lumber received by vessel at Port Newark during the month of April, 1932, was 10,019,000 board feet, which was 39 per cent. less than during the same month last year. Shipments of lumber inland from Port Newark during the month amounted to 13,019,000 board feet, of which 4,327,000 feet were moved by railroad car and 8,692,000 feet were moved by truck.

The volume of cargo other than lumber received by vessel was 36,698 tons, a gain of 66 per cent. over last year. This included 11,498 tons of potatoes of which 7,605 tons were received from Maine, and 3,893 tons from Canada.

Forty-one steamers arrived at Port Newark during the month, compared with 23 in April, 1931.

Steamship Passenger Traffic.

Compared with the first three months of 1931, the first quarter of this year shows an approximate loss of 20 per cent. in the total number of steamship passengers travelling abroad via the Port of New York. The loss would be still greater, or 33 per cent., if the comparison was made with the 1930 period.

While a total of 189,620 passengers is reported for the 1930 first quarter, and 155,990 passengers for the 1931 first quarter, this traffic decreased to a total of 126,718 passengers for the same period of this year.

	March, 1932	March, 1931
INBOUND—		
Aliens, Immigrant	1,439	2,439
Aliens, Non-Immigrant	6,112	8,020
U.S. Citizens	13,574	18,124
Total ...	21,125	28,583
OUTBOUND—		
Aliens, Emigrant	3,090	2,276
Aliens, Non-Emigrant	6,268	8,607
U.S. Citizens	11,766	18,495
Total ...	24,124	29,378
Total Inbound and Outbound	45,249	57,961
Total for Three Months	126,718	155,990

Decreases have also taken place in the domestic services, although not to the same extent as foreign travel.

Grain Exports.

Exports of grain, both domestic and Canadian, from the Port of New York during March, 1932, were 14 per cent. greater than in the same month last year, a drop in Canadian grain of 19 per cent. being more than balanced by a gain of 342 per cent. in the domestic product.

	March 1932 Bushels	March 1931 Bushels	Net Change Amount	Net Change Per Cent.
Domestic and Canadian Grain	5,606,000	4,912,000	+694,000	+14.1
Domestic Grain	1,989,000	450,000	+1,539,000	+342.0
Canadian Grain	3,617,000	4,462,000	—845,000	—18.9

For the three months ending March, or the first quarter of the year, grain exports at New York were 35 per cent. under last year's figure. An increase of 381 per cent. occurred in exports of domestic grain, which was offset by drop of 51 per cent. in Canadian grain.

	January-March 1932	January-March 1931	Net Change Amount	Net Change Per Cent.
Domestic and Canadian Grain	10,326,000	15,915,000	—5,589,000	—35.1
Domestic Grain	2,804,000	583,000	+2,221,000	+381.0
Canadian Grain	7,433,000	15,332,000	—7,899,000	—51.5

Receipts of Grain and Visible Supply at the Port of New York.

The receipts of grain, both domestic and Canadian, at the Port of New York during the month of April, 1932, amounted to 2,331,000 bushels, of which 96,000 bushels arrived via the New York State Canal, and the remainder by rail. This figure is 50 per cent. under that of April, 1931.

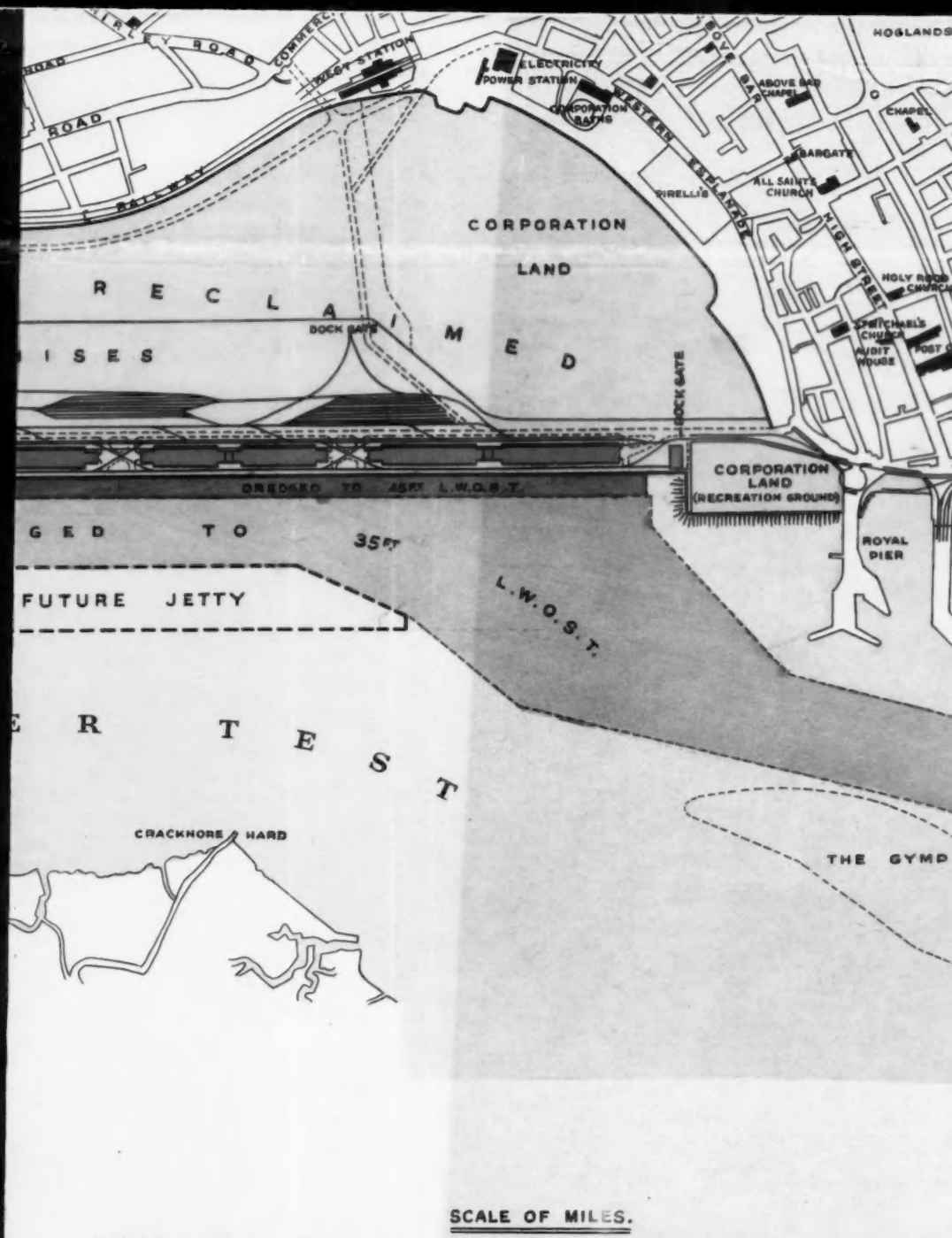
RECEIPTS (Bushels).

	April 1932	April 1931	Net Change Amount	Net Change Per Cent.
Wheat	2,144,300	3,926,500	—1,782,200	—45.7
Barley	—	416,900	—416,900	—100.0
Corn	69,000	78,000	—9,000	—11.5
Oats	121,000	138,600	—17,600	—12.7
Rye	6,800	77,000	—70,200	—91.2
All Grain	2,331,100	4,637,000	—2,305,900	—49.8

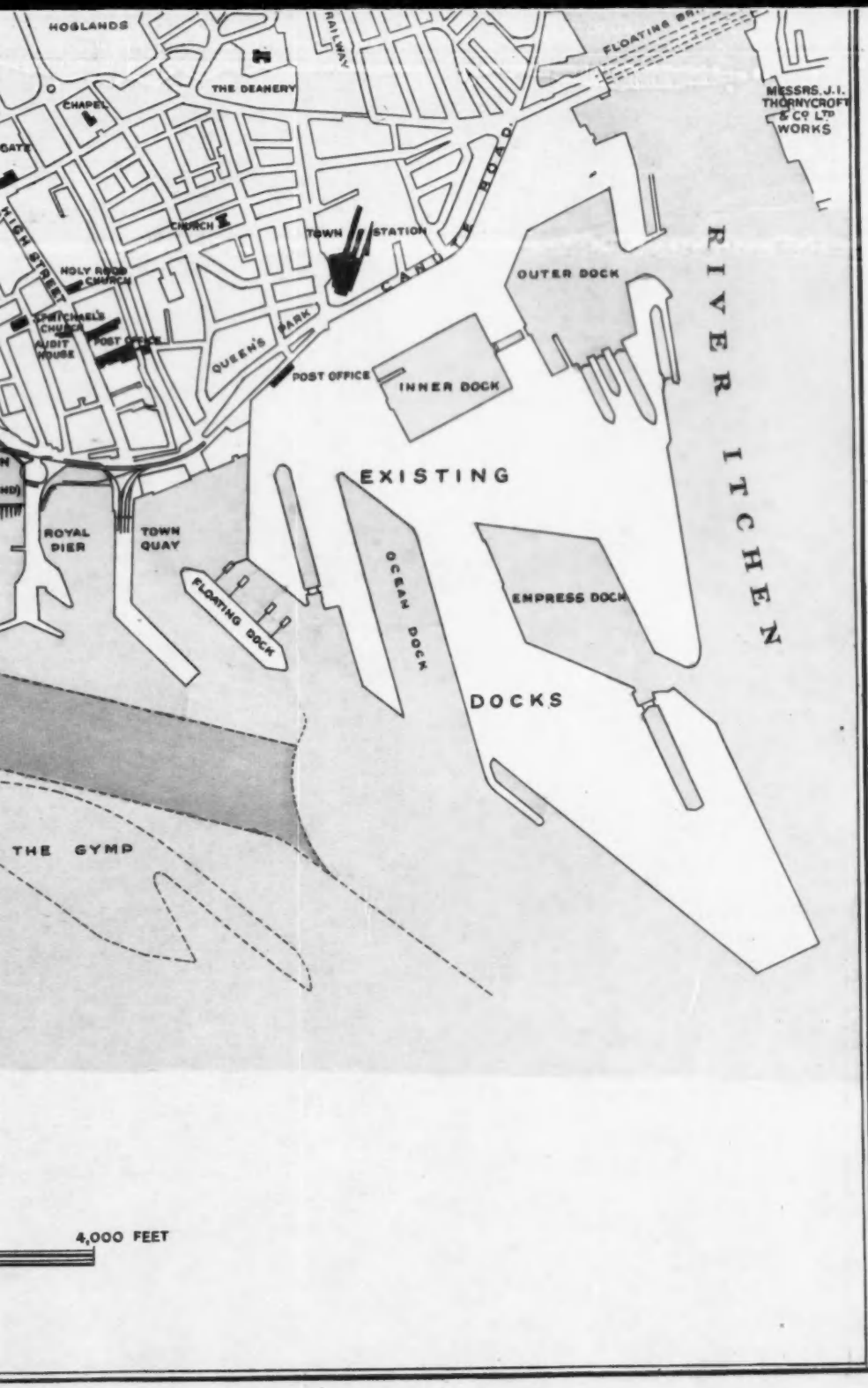
The visible supply of grain in storage in the port on April 30th, 1932, and May 2nd, 1931, which is the nearest comparable date, is as follows:—

VISIBLE SUPPLY (Bushels).

	April 30 1932	May 2 1931	Net Change Amount	Net Change Per Cent.
Wheat	2,476,000	1,415,000	+1,061,000	+75.0
Barley	3,000	47,000	—44,000	—93.5
Corn	—	29,000	—29,000	—100.0
Oats	37,000	6,000	+31,000	+516.7
Rye	2,000	102,000	—100,000	—98.0
All Grain	2,518,000	1,599,000	+919,000	+57.3



WARD & FOXLOW LTD. (LITHOS). 19, HARCOURT STREET, W.1.


HOGLANDS
THE DEANERY
CHAPEL
GATE
HIGH STREET
CHURCH
TOWN
STATION
HOLY ROOD CHURCH
ST MICHAEL'S CHURCH
AUDIT HOUSE
POST OFFICE
QUEEN'S PARK
POST OFFICE
INNER DOCK
OUTER DOCK
RIVER ITCHEN
EXISTING
ROYAL PIER
TOWN QUAY
FLOATING DOCK
OCEAN DOCK
EMPRESS DOCK
DOCKS
THE GYMP
MESSRS. J. I. THORNYCROFT & CO LTD WORKS
4,000 FEET

Aden Port Trust.

The returns for the month of March, 1932, of shipping using the port were as follows:—

	No.	Tonnage
Merchant Vessels over 200 tons ...	127	538,071
,, ,, under 200 tons ...	7	823
Government Vessels	13	26,851
Dhows	113	4,043
PERIM.		
Merchant Vessels over 200 tons ...	17	62,318

was Rs. 55,83,000/- as compared with Rs. 48,34,000/- for March, 1931, and of exports Rs. 33,47,000/- as compared with Rs. 31,48,000/-.

The total value of both imports and exports together was Rs. 89,30,000/- as compared with Rs. 79,82,000/- for the corresponding month last year.

Imports during the month were above those for March, 1931, in the case of coffee, gums and resins, hides (raw), seeds, sugar, piece goods (white and printed or dyed), tobacco (unmanufactured and manufactured), and below in the case of grain, pulse and flour, hardware, skins (raw), piece goods (grey), twist and yarn and treasure (private).

Exports were above those for March, 1931, in the case of coffee, hardware, seeds, sugar, piece goods (white and printed or dyed), tobacco (unmanufactured) and treasure (private); and below in the case of grain, pulse and flour, gums and resins, hides (raw), skins (raw), piece goods (grey), twist and yarn and tobacco (manufactured).

TRADE OF THE PORT.

Article.	Unit.	Imports.		Exports.	
		Quantity.	Value Rs.	Quantity.	Value Rs.
Coal	Tons	5,585	1,64,568	0	0
Coffee	Cwts.	12,863	4,16,638	8,177	3,57,349
Grain, Pulse and Flour	,,	40,128	2,17,329	26,250	1,38,966
Gums and Resins	,,	6,206	94,428	3,583	68,746
Hardware	—	0	18,250	0	16,541
Hides, raw	No.	4,112	5,035	6,966	12,059
Oil, Fuel	Tons	55,263	16,57,890	0	0
,, Kerosene	Gls.	28,547	20,660	6,752	5,056
,, Petrol	,,	26,215	32,847	4,705	5,376
Salt	Tons	0	0	36,970	4,22,619
Seeds	Cwts.	2,742	18,880	1,491	11,456
Skins, raw	No.	250,930	1,24,263	381,280	3,53,429
Sugar	Cwts.	30,007	2,00,127	14,641	98,100
Textiles—					
Piece Goods, Grey	Yds.	4,338,820	6,80,247	3,567,210	5,71,530
,, ,, White	,,	706,620	1,42,400	356,005	77,236
,, ,, Printed or Dyed ..	,,	997,478	2,42,653	922,020	2,52,114
Twist and Yarn	Lbs.	161,440	79,505	159,194	79,990
Tobacco, Unmanufactured	,,	460,404	75,665	633,640	1,02,915
,, Manufactured	,,	61,236	53,747	19,600	14,765
Other Articles	No. of Pkges.	57,224	9,84,335	23,484	3,77,105
Treasure, Private	—	0	3,53,097	0	3,82,075
Total ...	—	—	55,82,564	—	33,47,427

The number of merchant vessels over 200 tons that used the port in March, 1932, was 127 as compared with 117 in the corresponding month last year and the total tonnage was 538,000 as compared with 471,000.

Excluding coal, salt, fuel oil and military and naval stores and transhipment cargo, the total tonnage of imports in the month was 9,400 and of exports 5,600 as compared with 8,600 and 5,800 respectively for the corresponding month last year.

The total value of imports, excluding Government stores,

The Port of New Orleans

The business of the port of New Orleans continued to show substantial improvement during the month of April. Figures compiled and released by the Dock Board disclose that 200 seagoing vessels, having a total gross tonnage of 868,050 tons arrived during the month.

Vessels using the public wharves had a total tonnage of 689,511 tons. Cargo paying tollage amounted to 289,417 tons, an increase of 39,701 tons. During the month, 1,100,882 bunches of bananas were unloaded by the Board's conveyors.

Many commodities moving over the port's wharves showed marked increases. Among the imports, non-metallic minerals increased 134,483 tons; vegetable food products increased 26,035 tons and textiles and miscellaneous commodities increased 694 tons and 223 tons respectively. Among the exports the largest increase was in vegetable food products which increased 35,460 tons. Textiles and ores, metals and their manufactures exported increased 12,872 tons and 2,198 tons respectively.

The Inner Harbour Navigation Canal was again the centre of great activity. During the month, 1,141 vessels having a total tonnage of 391,889 tons used this facility.

There was a substantial increase in arrivals of inland watercraft over 25 tons. During the month, 367 vessels having a total tonnage of 149,352 tons arrived in port, being an increase of 13 vessels and 10,477 tons over April, 1931.

Of the 200 seagoing vessels which arrived during the month, 119, or more than 59 per cent., were under American registry. These American ships represented more than 64 per cent. of the total gross tonnage. Norway was second in number of ships and third in tonnage, while Honduras was third in number of ships and Great Britain second in tonnage.

Following is a tabulation, showing nationality, number of ships and total tonnage of seagoing vessels which arrived during the month:—

Nationality.	No. of Vessels.	Gross Tonnage.
American	119	557,616
British	15	80,463
Brazilian	2	8,656
Belgian	1	5,086
Danish	4	13,449
Dutch	3	17,801
German	4	21,343
Honduran	18	54,425
Italian	3	18,947
Japanese	2	11,714
Latvian	1	3,002
Nicaraguan	3	1,680
Norwegian	21	60,462
Swedish	4	13,406
	200	868,050

The Port of New York

Latest Data issued by the Bureau of Commerce

Foreign Trade at the Port of New York.

THE value of exports and imports at the Port of New York, in March, 1932, amounted to $115,349,000, as compared with $187,140,000 for the same month last year, a decline of 38 per cent. Exports were $48,261,000, a decline of 44 per cent., and imports $67,088,000, a drop of 34 per cent.

	March 1932 $	March 1931 $	Net Change Amount $	Net Change Per Cent.
Exports	48,261,000	86,014,000	—37,753,000	—43.9
Imports	67,088,000	101,126,000	—34,038,000	—33.6
Exports and Imports	115,349,000	187,140,000	—71,791,000	—38.4

For the three months ending March, 1932, the value of foreign trade at New York amounted to $340,553,000, which is 37 per cent. under that of the corresponding period last year.

The volume of foreign trade at the Port of New York during the calendar year 1931, according to a recent report of the United States Shipping Board, amounted to 18,530,000 long tons, and was equal to 25 per cent. of that of the whole United States. While the volume of foreign trade at the Port of New York in 1931 was 18 per cent. under that of the previous year, the decline for all ports in the country was 21 per cent.

The exports were 5,968,000 tons, a decline of 1,613,000 tons or 21 per cent. of the previous year, and the imports 12,562,000 tons, a drop of 2,335,000 tons, equal to 16 per cent. It will be noted that the volume of imports at New York is approximately twice that of exports, and that the decline is greatest in the latter. When the volume of foreign trade for the whole country is considered, we find that exports and imports are nearly equally divided, and that the greatest decline is in the imports.

VOLUME OF FOREIGN TRADE
(Long Tons)

	1930	1931	Net Change Amount	Net Change Per Cent.
EXPORTS AND IMPORTS				
United States	95,465,000	75,601,000	—19,864,000	—20.8
New York	22,478,000	18,530,000	—3,948,000	—17.6
Per cent. N.Y. of U.S. ...	23.5	24.5		
EXPORTS				
United States	46,782,000	39,919,000	—6,863,000	—14.7
New York	7,581,000	5,968,000	—1,613,000	—21.3
Per cent. N.Y. of U.S. ...	16.2	15.0		
IMPORTS				
United States	48,683,000	35,682,000	—13,001,000	—26.7
New York	14,897,000	12,562,000	—2,335,000	—15.7
Per cent. N.Y. of U.S. ...	30.6	35.2		

Vessel Movements in Foreign Trade.

The number of entrances and clearances of vessels in foreign trade at the Port of New York during the month of April, 1932, were 10 per cent. lower than for the same period last year.

	April, 1932 No. of Vessels	April, 1932 Vessel Tonnage	April, 1931 No. of Vessels	April, 1931 Vessel Tonnage
Entrances ...	447	2,258,152	496	2,538,201
Clearances ...	463	2,303,683	521	2,656,992

Steamship Sailings.

The number of sailings in foreign service during April total about 10 per cent. under the number reported for that month last year. Whereas April sailings to foreign countries were at an approximate rate of 13 per day in 1931, this year's rate averages 11 per day.

No great changes were reported for the month in the domestic trade routes other than a lesser number of the Hudson River sailings, which, however, will increase from now on as the summer season approaches.

At a time when sailing schedules are being curtailed everywhere, it is interesting to note that on Saturday, April 2nd, a total of 73 vessels cleared from the Port of New York. This total included 32 in foreign service, of which 6 were direct to the United Kingdom, 2 to Baltic ports, 2 to Rotterdam and Antwerp, 1 to Hamburg-Bremen, 2 to Italy, 1 to Adriatic ports, 1 to Rio de Janiero-River Plate, 8 to Caribbean-Mexican ports and 3 tankers.

The 41 domestic sailings included 5 direct to the Pacific Coast, 8 to South Atlantic and Gulf ports, 5 tankers and 1 coal carrier.

Commerce at Port Newark.

The amount of lumber received by vessel at Port Newark during the month of April, 1932, was 10,019,000 board feet, which was 39 per cent. less than during the same month last year. Shipments of lumber inland from Port Newark during the month amounted to 13,019,000 board feet, of which 4,327,000 feet were moved by railroad car and 8,692,000 feet were moved by truck.

The volume of cargo other than lumber received by vessel was 36,698 tons, a gain of 66 per cent. over last year. This included 11,498 tons of potatoes of which 7,605 tons were received from Maine, and 3,893 tons from Canada.

Forty-one steamers arrived at Port Newark during the month, compared with 23 in April, 1931.

Steamship Passenger Traffic.

Compared with the first three months of 1931, the first quarter of this year shows an approximate loss of 20 per cent. in the total number of steamship passengers travelling abroad via the Port of New York. The loss would be still greater, or 33 per cent., if the comparison was made with the 1930 period.

While a total of 189,620 passengers is reported for the 1930 first quarter, and 155,990 passengers for the 1931 first quarter, this traffic decreased to a total of 126,718 passengers for the same period of this year.

	March, 1932	March, 1931
INBOUND—		
Aliens, Immigrant	1,439	2,439
Aliens, Non-Immigrant	6,112	8,020
U.S. Citizens	13,574	18,124
Total ...	21,125	28,583
OUTBOUND—		
Aliens, Emigrant	3,090	2,276
Aliens, Non-Emigrant	6,268	8,607
U.S. Citizens	14,766	18,495
Total ...	24,124	29,378
Total Inbound and Outbound	45,249	57,961
Total for Three Months	126,718	155,990

Decreases have also taken place in the domestic services, although not to the same extent as foreign travel.

Grain Exports.

Exports of grain, both domestic and Canadian, from the Port of New York during March, 1932, were 14 per cent. greater than in the same month last year, a drop in Canadian grain of 19 per cent. being more than balanced by a gain of 342 per cent. in the domestic product.

	March 1932 Bushels	March 1931 Bushels	Net Change Amount	Net Change Per Cent.
Domestic and Canadian Grain	5,606,000	4,912,000	+694,000	+14.1
Domestic Grain	1,989,000	450,000	+1,539,000	+342.0
Canadian Grain	3,617,000	4,462,000	—845,000	—18.9

For the three months ending March, or the first quarter of the year, grain exports at New York were 35 per cent. under last year's figure. An increase of 381 per cent. occurred in exports of domestic grain, which was offset by drop of 51 per cent. in Canadian grain.

	January-March 1932	January-March 1931	Net Change Amount	Net Change Per Cent.
Domestic and Canadian Grain	10,326,000	15,915,000	—5,589,000	—35.1
Domestic Grain	2,801,000	583,000	+2,221,000	+381.0
Canadian Grain	7,433,000	15,332,000	—7,899,000	—51.5

Receipts of Grain and Visible Supply at the Port of New York.

The receipts of grain, both domestic and Canadian, at the Port of New York during the month of April, 1932, amounted to 2,331,000 bushels, of which 96,000 bushels arrived via the New York State Canal, and the remainder by rail. This figure is 50 per cent. under that of April, 1931.

RECEIPTS (Bushels).

	April 1932	April 1931	Net Change Amount	Net Change Per Cent.
Wheat	2,134,300	3,926,500	—1,792,200	—45.7
Barley	—	416,900	—416,900	—100.0
Corn	69,000	78,000	—9,000	—11.5
Oats	121,000	138,600	—17,600	—12.7
Rye	6,800	77,000	—70,200	—91.2
All Grain	2,331,100	4,637,000	—2,305,900	—49.8

The visible supply of grain in storage in the port on April 30th, 1932, and May 2nd, 1931, which is the nearest comparable date, is as follows:—

VISIBLE SUPPLY (Bushels).

	April 30 1932	May 2 1931	Net Change Amount	Net Change Per Cent.
Wheat	2,476,000	1,415,000	+1,061,000	+75.0
Barley	3,000	47,000	—44,000	—93.5
Corn	—	29,000	—29,000	—100.0
Oats	37,000	6,000	+31,000	+516.7
Rye	2,000	102,000	—100,000	—98.0
All Grain	2,518,000	1,599,000	+919,000	+57.3

Italian Harbour Affairs

ACCORDING to statistics, which have just been published by the Istituto Centrale di Statistica, shipping at Italian ports during the month of May, 1932, included:—

	No. of Ships	Net Reg. Tons	Tons of Goods	Passengers
Arrivals	17,180	6,687,527	1,997,006	311,703
Clearances	17,101	6,585,316	647,487	299,845
Total Arrivals and Clearances	34,281	13,272,843	2,644,493	611,548

During the corresponding period of 1931 shipping at Italian ports included:—

	No. of Ships	Net Reg. Tons	Tons of Goods	Passengers
Arrivals	18,155	6,892,806	2,179,467	362,846
Clearances	17,958	6,905,775	664,211	356,554
Total Arrivals and Clearances	36,113	13,798,581	2,843,678	719,400

Imports of goods into Italy by sea during the month of May, 1932, have shown a decline of 182,461 tons, while exports have shown a decline of 16,724 tons. Total shipping during the month of May, 1932 has thus shown a decline of 199,185 tons, while the total decline of shipping on May 31st, 1931, in respect to the corresponding period of 1930 reached 218,000 tons, which means that the situation has improved.

According to statistics which have been published by the Consorzio Autonomo del Porto di Genova, shipping at that port included the following items:—

	GOODS UNLOADED 1932				
	May Tons	April Tons	March Tons	February Tons	January Tons
Coal	221,250	167,954	187,882	120,268	193,755
Cereals	78,328	40,954	80,290	59,790	46,434
Cotton	10,627	12,005	18,144	13,779	24,570
Wool	4,705	5,742	8,556	5,981	6,199
Skins	921	982	1,306	1,458	2,248
Phosphates	10,218	5,796	3,974	1,582	1,800
Mineral Oils ...	27,209	27,196	29,406	26,480	39,635
Frozen Meat ...	2,299	3,309	1,756	1,427	1,354
Lumber	8,001	9,417	6,284	10,665	9,454
Other Goods ...	108,650	126,441	109,911	120,929	94,807
Total	472,108	399,796	447,509	362,359	420,256

Imports at the port of Genoa during May, 1932, have been the largest of the year, but if the details of the figures are examined it will be seen that, while general cargo has decreased, coal imports have increased. In order to be able to judge the situation of shipping at Genoa in respect to 1931 it should be noted that total imports during the first five months of 1932 included 2,162,028 tons against 2,405,865 tons during the corresponding period of 1931. In connection with exports figures for 1932 are showing a slight increase, shipments through Genoa, during the period from January 1st to May 31st, 1932, having reached 360,559 tons against 360,457 tons during the corresponding period of 1931.

From statistics published by the Consorzio Autonomo del Porto di Genova the following is a schedule of the tonnage which has been drydocked at that port in the last three months:

	May, 1932		April, 1932		March, 1932	
	No.	Gross Tons	No.	Gross Tons	No.	Gross Tons
Steamers	43	256,118	25	125,741	37	221,880
Motor Sailing Vessels	2	500	1	222	2	950
Sailing Vessels ...	7	1,849	1	235	—	—
Various	7	612	2	200	5	491
Total	59	259,079	29	126,398	44	223,321

The tonnage drydocked has shown an increase in line with the progress of shipping, and there is reason to believe that the figures for the first half of 1932 will show considerable progress over 1931, particularly in view of the fact that for the second time the "Rex," the 51,000 tons liner, under construction in Italy, will be drydocked.

The Cantieri del Tirreno at Genova have just completed the conversion of the steamer "Giuan" into a floating coal bunkering plant, with the appropriate cranes, etc., in order to ensure quick bunkering in the port of Genoa.

The Italian Cabinet has officially announced that the necessary credit (50,000,000 lire) to undertake the construction of the 280 metres dry dock at Naples and the building of the new maritime passenger station has been placed at the disposal of the appropriate authorities. The new maritime passenger station should be ready by 1935. No decision has been taken in regard to the system to be adopted in the construction of the dry dock, but it is understood that Ing. Prof. Greco, who is attending to the construction of the port of Naples, has been asked to prepare a project for this purpose.

According to information which has just been published, extensive dredging works are being carried out at Porto Corsini (Ravenna) and in the La Brentella Canal (Venice).

The Consiglio Provinciale dell 'Economia (Chamber of Commerce and Industry) at Cagliari (Sardinia) has worked out a project regarding further enlargement of the port, and the construction of an industrial canal in order to connect the commercial port with the industrial zone of the town. It would appear that the construction of two concrete warehouses is under consideration. The various electric cranes and electric elevators which have recently been ordered, have already been put into operation.

It is announced that the Italian Government has decided to start the construction of a safety port at Porto Civitanova.

New Pilot Boat for Constanza.

The Cantiere di Ancona of the Cantieri Navali Riuniti S.A. of Genoa, which also operates the shipbuilding yard at Palermo, has delivered, after successful trials, to the Constanza Harbour Authorities, the pilot boat "Ing. Ch. Duca," having the following dimensions:—Length between perpendiculars, 18.50 metres; maximum breadth, 4.80 metres; height of construction amidship, 2.40 metres; average draught at full load at line of construction, 1.78 metres; maximum speed on trials, 10 miles.

The Pilot Boat built for Constanza.

The propelling machinery of the "Ch. Duca" consists of two Sulzer Diesel engines 4 RKW 20 type of the total power of 150 b.h.p.

Its hould be noted that this is the second time that the Ancona shipbuilding yard has built to the order of Roumanian shipowners, while it has already built some ships for Argentine and Portuguese shipowners and Harbour Authorities. The Palermo shipbuilding yard has just delivered to the Persian Navy two motor gunboats built to their order. The fact that foreign Governments are granting a certain preference to the yards of the Cantieri Navali Riuniti of Genoa shows the efficiency reached by them.

Southampton Dock Statistics for May

Although the May returns for Southampton Docks are not very encouraging the figures in respect of passenger traffic give ground for gratification.

In previous months there has been a continuous decrease in passenger business handled at Southampton, but in May the total, both inward and outward, took a pronounced bound in the upward direction. The inward total of 18,861 in May, 1931, was eclipsed by 3,403, the figures for May this year being 22,264; while outward the total was 17,604 as against 16,608 a year ago—an increase of 996.

Considered together, therefore, the advance in passenger business for May, 1932, as compared with May, 1931, was 4,399. The increase appears to be attributable to the popularity of cruising.

The number of vessels inward declined by 27, the total dropping from 312 to 285, while outward there was a decrease of 30, the respective figures being 314 and 284. This state of affairs was reflected in the tonnage returns. Gross tonnage fell by 100,365 tons inward and 183,682 tons outward, the respective aggregates in May, 1932, being 1,338,086 tons inward and 1,365,830 tons outward.

The net tonnage returns reveal that the inward figure declined from 761,711 tons to 707,621 tons, and the outward from 817,228 tons to 708,482.

The aggregate decrease in cargo handled was considerable for inward the volume was 3,268 tons less, and outward 10,466 tons less. The import figure was 41,845 tons, as compared with 45,113 tons, and the export total was 23,702 as against 34,168 tons.

The figures relating to troop movements show a drop of 255, the total being 1,098.

Irish Harbour Matters

Deficit in Cork Harbour Returns *Traffic Figures of Belfast*

Cork

Cork Harbour Board: Nine Months Deficit.

TO meet a deficiency of £5,116 on the last nine months working of the Cork Harbour Board, a special sub-committee have reported that the Board could not continue the reduction on maize dues which have been lowered from 1s. 8d. to 10d. per ton and recommended that these dues be increased to 1s. per ton. They also recommended that one of the dredgers employed by the Board should be laid up, and that the granting of annual holidays on full pay be confined to men on the established staff.

The chairman (Mr. Richard Wallace) said that there would probably be a deficit of about £8,000 on the full year's working, and something should be done to meet it. An increase in the maize duties would mean an increase in revenue of £1,000. The laying up of the dredger would save £100 per week, though it would mean the slowing up of the work on the Tivoli scheme. The other suggestion as to holidays would save about £200.

The recommendation of the special committee that the import dues on maize be increased from 10d. to 1s. per ton was opposed by Messrs. O'Shea and Horne, who moved that the rate remain unchanged. It was agreed to postpone the decision of the Board on this suggestion of the sub-committee so as to give importers an opportunity of considering it.

The other recommendations were adopted.

For the month of June, 32 transatlantic liners are scheduled to call at Cork Harbour, many of them chiefly in connection with the Eucharistic Congress.

Limerick

Limerick Harbour Board.

At a meeting of the committee deputed by the Limerick Harbour Board to consider the question of the purchase-price of 20 acres of Corkanree lands from the Limerick Corporation for the dock extension project, it was mentioned that the price of the land was fixed by the Government valuer at £2,500, in addition to the construction of a new sewer at a cost of £3,000. The latter having been considered unnecessary the Corporation claim that the money should be paid to them.

The engineer was of opinion that if the Corporation persisted in demand, the Board should construct a sewer.

The secretary said that what should be done was to come to an agreement with the Corporation on the question of £3,000.

The engineer said that as a result of the imposition of recent tariffs, the cost of material for dock extension would be increased by £3,428. If, however, representation was made to the Ministry, he was sure some arrangement could be made.

The secretary stated that he had received no information from the Chief State Solicitor in connection with the amendments made by the Board to the agreement under which the Ministry for Industry and Commerce was prepared to issue a guarantee under the Trade Loans Guarantee Act to the Board, enabling to raise a loan of £100,000 required for the proposed dock extension scheme.

In the agreement submitted by the Minister it was stated that the bank could not issue the stock without his consent. The bank objected to that clause, and the Board asked the Minister to waive it, but, at the time of writing the Minister had not given his decision.

Dublin

Mr. Charles E. McGloughlin.

The death took place on the 7th June of Mr. Charles E. Gloughlin, chairman and managing director of Messrs. C. and P. McGloughlin, constructional engineers and art metal workers, Pearse Street, Dublin. Mr. McGloughlin was in his third year as chairman of the Dublin Port and Docks Board of which he was a traders member for the past nine years. Before his election as chairman, he had acted as vice-chair- and took a keen personal interest in the working of the port. His re-election as chairman this year was largely due to the desire of his colleagues to have a leading Catholic as their representative at the Eucharistic Congress. He was a commercial member of the Dublin Corporation and would have been put forward as Dublin's next Lord Mayor had he recovered. In the Councils of the Dublin Chamber of Commerce, he took an active part. He was also a member of the building trades section of the Dublin Employers Federation and in this connection was a strong advocate of peaceful settlements in the matter of trade disputes. He took a lively interest in the affairs of the Dublin Rotary Club of which he was at one time President and District Chairman and his passing will be much regretted.

Butt Bridge Opened: Dublin Port Development.

The handsome ferro-concrete Butt Bridge which replaces the old swivel bridge over the River Liffey at the Custom House, Dublin, was formally opened by His Grace the Most Rev. Dr. Byrne, Archbishop of Dublin, on the 7th June.

Mr. Walter Baird, Vice-Chairman of the Dublin Port and Docks Board, in thanking the Archbishop, stated that the necessity for providing a new bridge had been apparent to everyone. The transport problem had become very pressing owing to the great increase of traffic over the bridge since the Free State was established, but in addition there was a keen desire to complete the work for the Eucharistic Congress so that visitors might have a good impression of the City.

At a subsequent luncheon, Mr. Baird described the first Butt Bridge, completed in 1879, at a cost of £44,500, and told how so far back as 1896 the matter of widening the bridge had been before the Board, but difficulties in the way prevented anything being done until the Act, which was passed in 1928, enabled them to undertake the complete rebuilding of the bridge.

The new bridge had a clear roadway of 40-ft., and two footpaths 11-ft. 6-in. in width, which the Board believed will be ample for the requirements of road transport for many years. It had a central span of 112-ft. in the clear, and two side spans of 39-ft. 6-in. The foundations had been carried down to and into the rock of 20-ft. below low water. The central pier of the old bridge, which was a considerable impediment to barge traffic on the river, has been removed. A somewhat better view of that fine old building, one of the best of its kind in the world, the Custom House, was now obtainable.

As regards the construction of the bridge, the contractors, Messrs. Gray's Ferro-Concrete (Ireland), Ltd., had not only carried out the work to the satisfaction of the Board's engineer, but they had completed it well within the time specified. During construction the barge and other river traffic was carried on without serious interference, a matter of supreme importance to the Port Board's best customer. The entire cost was in the region of £60,000.

All the materials, with the exception of the cement and steel, have been obtained locally—the granite and stone chippings from County Dublin, the gravel from County Kildare. The bridge was designed under the supervision of the Board's engineer, Mr. J. Mallagh, who had the assistance of Professor Pierce Purcell as consulting engineer, and Messrs. O'Callaghan and Giron, architects, to the latter of whom credit should be given for the simple and pleasing appearance of the ornamentation of the bridge.

The Port of Dublin, he added, had been made a first-class port, and was now well known all over the world by that description. To secure this position the Dublin Port and Docks Board had to spend large sums of money, obtained by the creation and issue of new stock, and he was glad to be able to tell them that that stock now stands at 104, though a good deal of it was issued some years ago as low as £87 10s., and it is regarded as a first-class investment for trustee money.

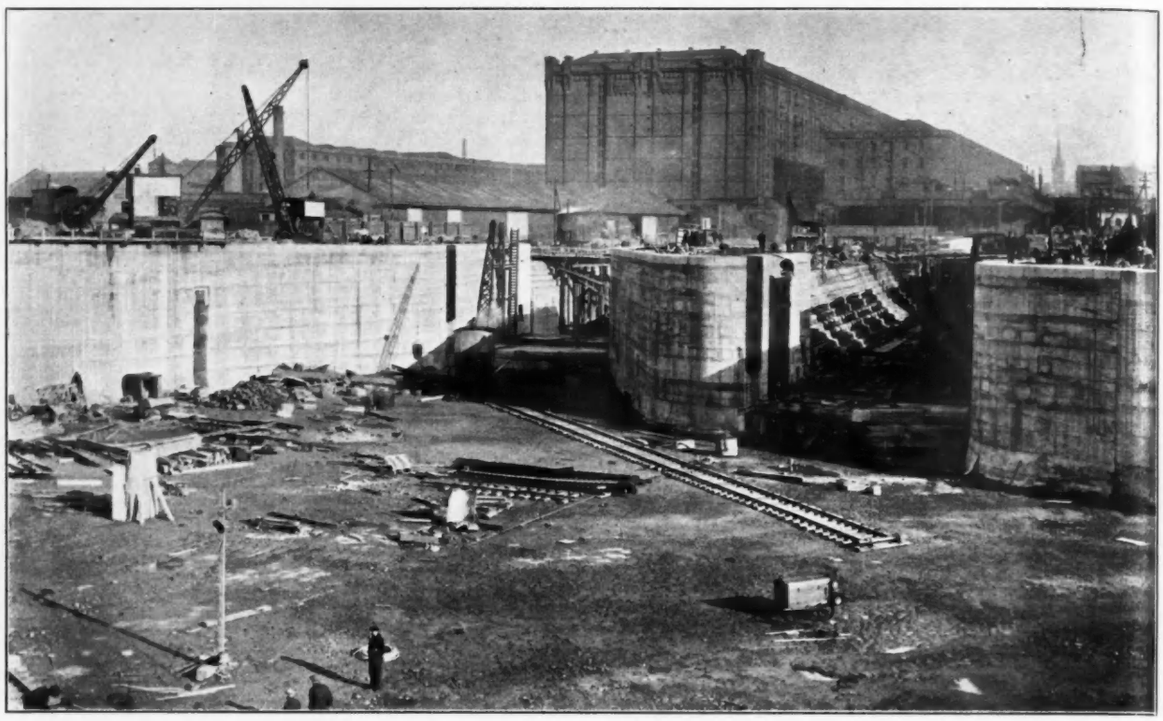
"I, therefore, trust that nothing will happen to impair the shipping and trade of the port, because we of the Port and Docks Board have to honour our responsibilities to the holders of our stock, which is chiefly held by residents whose interests are centred in the Irish Free State."

Belfast

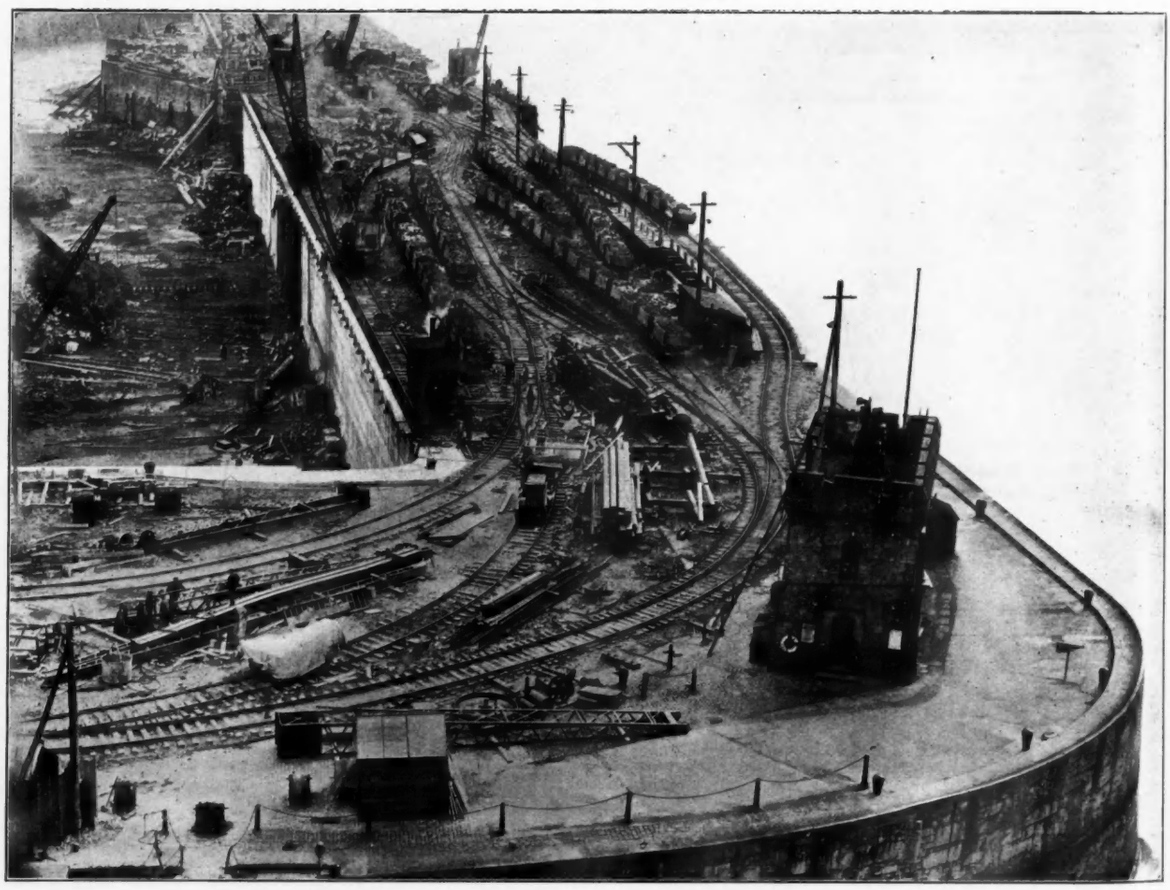
Latest Traffic Figures.

At a meeting of the Belfast Harbour Board on the 7th June, Mr. R. E. Herdman, D.L., presiding, the Harbour Master (Captain McIntyre) read the following report, 393 vessels arrived at the port in the period from 15th May to 4th June, as follows:—Coastwise and cross-channel, 353; foreign, 28; non-trading, 12. The total tonnage of the vessels which arrived from 1st January to 4th June was: Coastwise and cross-channel, 1,145,882, a fall of 12,882 over the corresponding period last year; foreign 340,876, an increase of 29,576; non-trading 16,604, a decrease of 16,146; total 1,503,362, an increase of 548.

Modernisation of Liverpool Central Docks



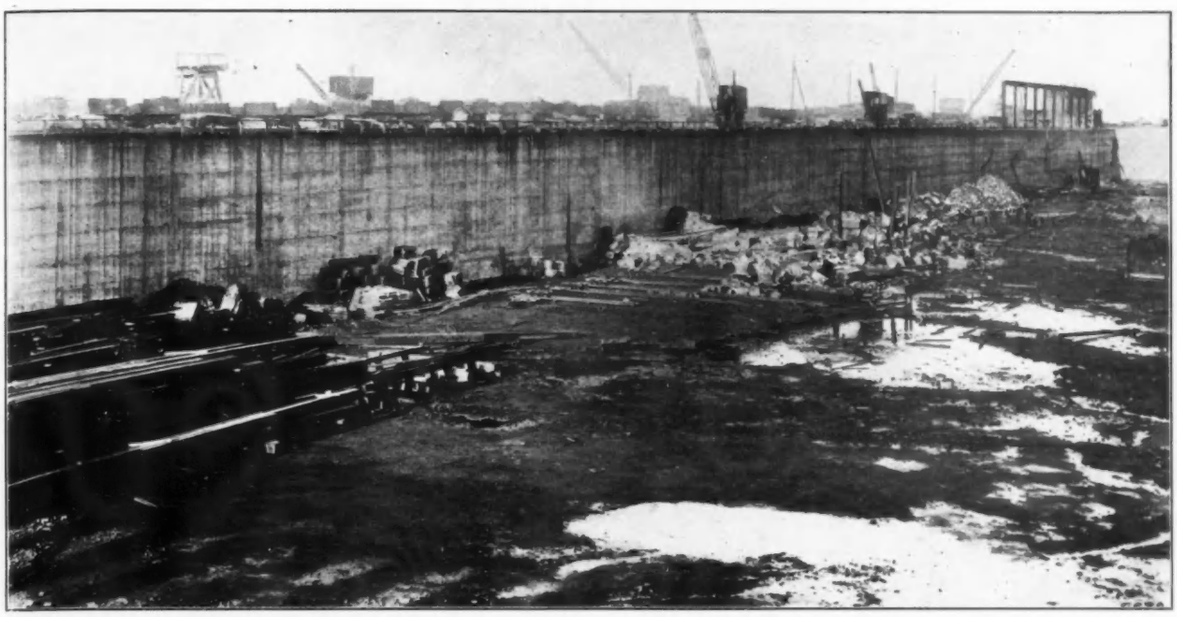
Clarence Works, Liverpool, showing New North Wall and Entrances to Graving Docks. October 28th, 1931.



Clarence Works, Liverpool. View of River Wall, showing Waggons loaded for Tipping into Hoppers. September 21st, 1931.

Modernisation of Liverpool Central Docks

Completion of £1,000,000 Dock Improvement Scheme



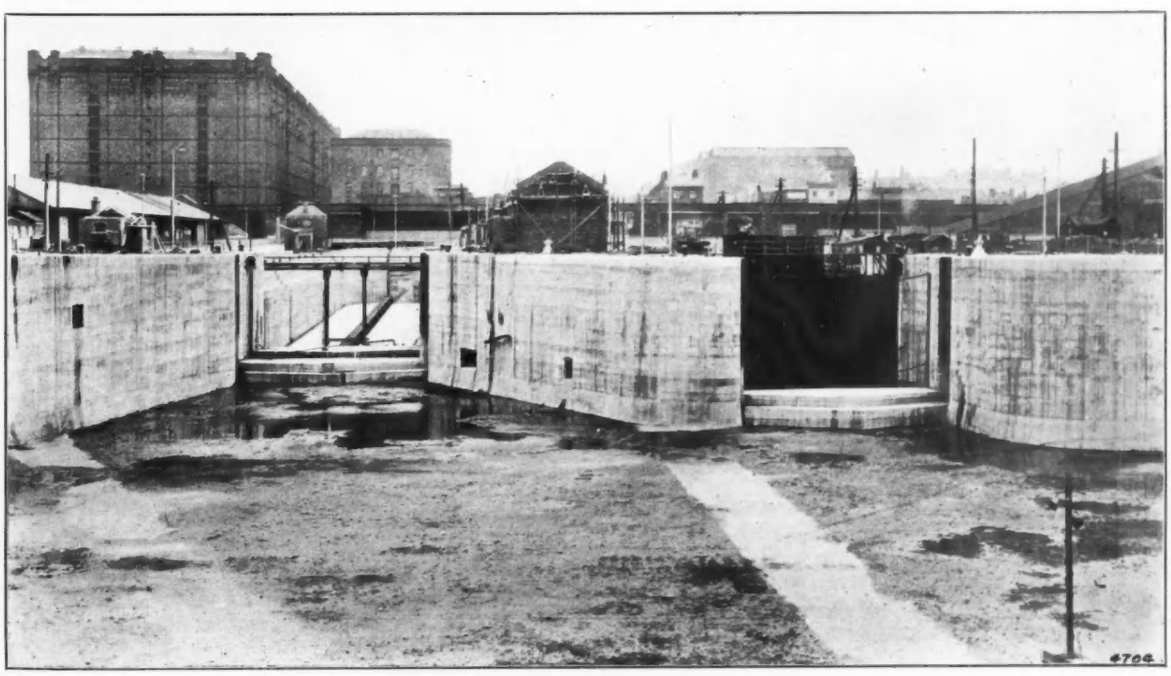
Clarence Works, Liverpool. West Wall of Clarence Dock, looking North. December 29th, 1931.

As the result of the scheme for the modernisation of the Liverpool central docks, which the Mersey Docks and Harbour Board has just carried through at a cost of about £1,000,000, involving the widening and deepening of various passages connecting the docks, it is now possible for comparatively large vessels to enter Gladstone Dock at the mouth of the Mersey at any state of tide and pass right through, inside the southerly docks, until they arrive at Prince's Dock. The distance between the Prince's Dock and Gladstone Dock is 3¾ miles. The work has taken two years to complete.

Clarence Dock was sold by the Mersey Docks and Harbour Board, some years ago, to the Liverpool Corporation, which has now built on the site a super power station, the ultimate cost of which, when fitted with plant to its maximum capacity, will be over £5,000,000. Possibly this development influenced the Dock Board to embark upon the scheme which comprised the construction of a new wet dock, complete with transit sheds, quays, roads, railway lines and a new passage from the Salisbury Dock, reconstruction of the graving dock and the enlarging of the entrance of No. 2 graving dock, complete with blocks, pumping plant, gates, etc.; the widening of the existing passage between the West Waterloo Dock and the Trafalgar Dock; two new bridges across the new Salisbury Dock Passage and the West Waterloo-Trafalgar Passage; also the deepening of the Waterloo-Princes Dock Passage.

Trafalgar Dock, the new wet dock, has an area of over seven acres, and is constructed on the site of the old Clarence Half Tide Dock and the Clarence Graving Dock Basin and Trafalgar Lock. It has a length of quay of 3,231 lineal feet.

This dock which is 200-ft. wide and is entered by a 60-ft. passage on the north side, with greenheart gates, has a depth of water over the sill of 26-ft. 4-in. on spring tides. The gates were built departmentally by the Dock Board Staff and are operated by machinery of the ram type, built to the Dock Engineer's design by the Hydraulic Engineering Co., of Chester. The passage is equipped with levelling culverts with paddles operated by hydraulic machinery, and there are also hand paddles for use in emergency.



Trafalgar Works, Liverpool. Entrances to Graving Docks. April 13th, 1932.

Modernisation of Liverpool Central Docks—continued

Four of the Motors manufactured by Bruce Peebles and Co., Ltd., Edinburgh, for driving the Pumping Plant for the Graving Dock.

The two large motors in the centre of the photograph are each designed for a continuous output of 400-b.h.p., their full load speed being 418-r.p.m. They operate on a 3-phase, 50-cycle, 400-volt A.C. circuit and are of the protected vertical spindle type, arranged with a cast-iron circular skirt for bolting to the pump facings. The smaller motors in the left and right foreground are each of 110-b.h.p., otherwise similar to the motors previously mentioned.

Single storey transit sheds are built on the east and west quays of Trafalgar Dock, the east side shed being divided into three compartments and the inclusive dimensions 885-ft. long and 55-ft. wide. The shed on the west side which has four compartments is of the same width but is 1,310-ft. long. The total floor area is 13,316 square yards, and there are steel fireproof doors separating each compartment. Continuous sliding doors are fitted on the dock side of each shed, whilst on the road side there are numerous exits and entrances, to ensure the uninterrupted and free movement of road traffic. In addition, there is a double track railway line connecting at each end of the shed to the main dock railway. The roadway feeding the west shed is 40-ft. wide and that for the east shed 50-ft. wide.

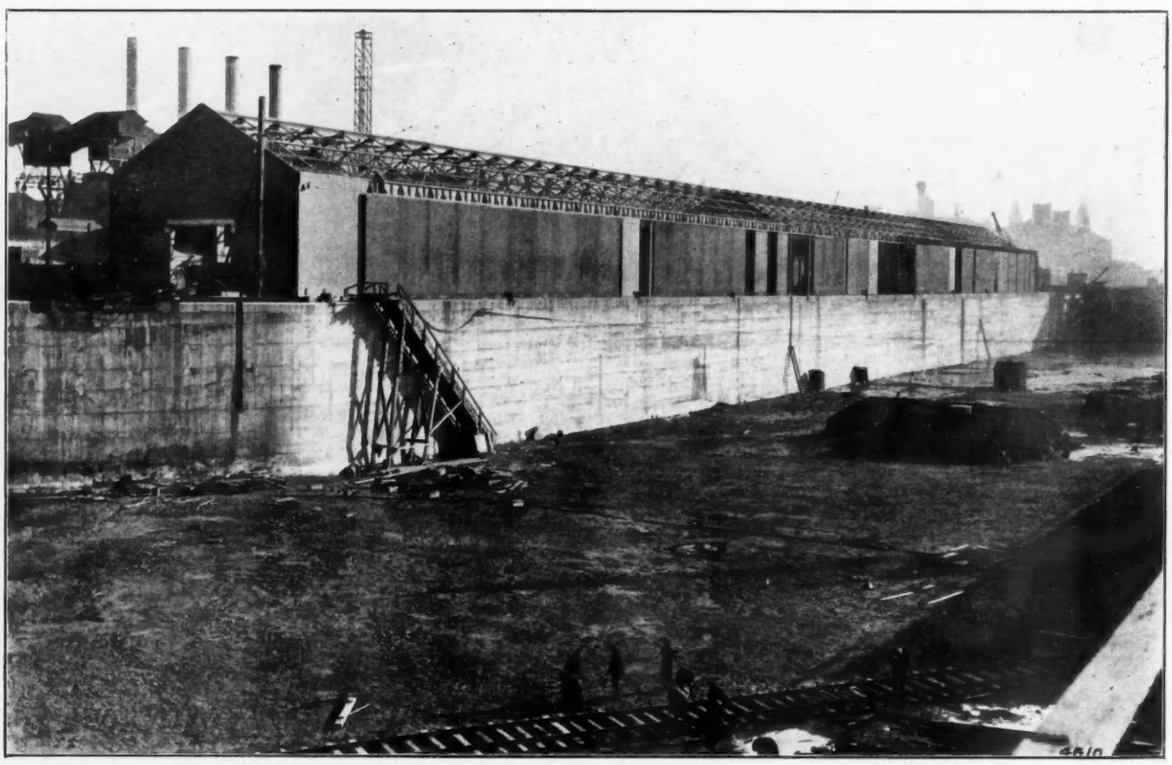
The roadside end and divisional walls are constructed of brick and on the dock side of the sheds there are steel columns and fascia girders. The roof trusses have been specially designed to support roof cranes of 30-cwt. and 3-ton lifting capacities should it be decided at some future date to erect cargo handling appliances of this description.

The original graving docks, Clarence No. 1 and Clarence No. 2, access to which was obtained from the north end of Clarence Half Tide Dock through a basin, have been shortened in accordance with the plan to facilitate the handling of vessels entering and leaving the graving dock, and those passing from dock to dock. Number 1 Graving Dock has been reconstructed and is 443-ft. 10-in. in length; 52-ft. in width at entrance, and affords a maximum depth of water over the blocks of 22-ft. 4-in. on spring tides.

Electric pumping plant is provided, capable of discharging 36,000 gallons of water per minute for emptying the dock. This graving dock will accommodate the largest vessels using the Central Docks System.

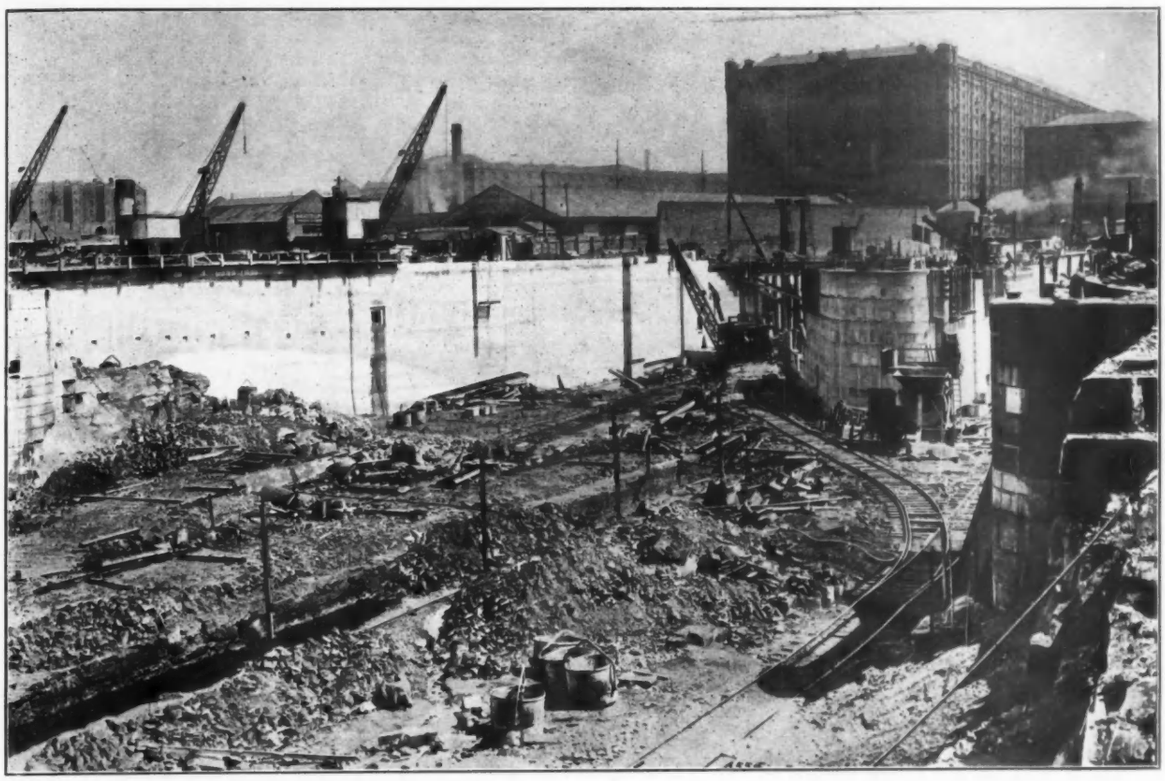
This electrically driven pumping plant was built by Messrs. Drysdale and Co., Ltd., of Glasgow, to the specification of the Dock Board's engineer-in-chief, and comprise two 27-in. diameter main pumps of the centrifugal type. They are driven by A.C. motors working at 400 volts, the motors being manufactured by Messrs. Bruce Peebles and Co., Ltd., of Edinburgh.

A rolling bascule bridge crosses the passage on the north side of Trafalgar Dock and a second bridge of the same design has been erected across the passage between the Trafalgar and West Waterloo Docks, the passage between the latter dock and Prince's Dock having been deepened. It may be recalled that two years ago, Prince's Dock and passage was reconstructed.

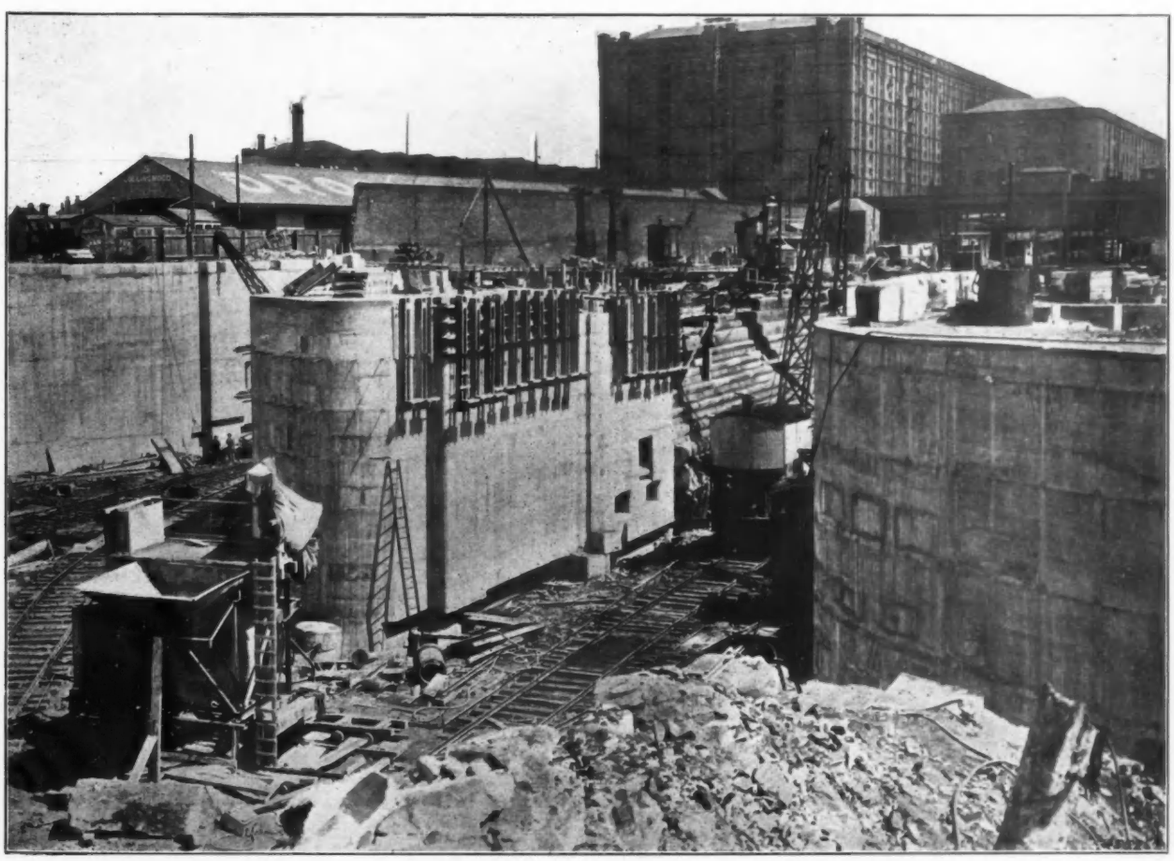


Clarence Works, Liverpool. Shed on East Quay. October 28th, 1931.

Modernisation of Liverpool Central Docks



Clarence Works, Liverpool. North-Easterly View across Graving Dock Basin. July 13th, 1931.



Clarence Works, Liverpool. Entrance to Graving Dock No. 2. July 13th, 1931.

Modernisation of Liverpool Central Docks—continued

These rolling bascule bridges which are capable of carrying the heaviest wheel loads of modern road and railway vehicles have a clear span of 60-ft. and a width of roadway of 24-ft. between the kerbs. The minimum headroom available for traffic across the bridges is 16-ft. and two 5-ft. footways outside the roadway are provided across the bridges.

The bridges are operated normally by means of electric motors, the energy being supplied by the Corporation of Liverpool, and in calm weather the operation of opening or closing of the bridges is completed in a minimum of 1½ minutes. In case of breakdown hydraulic motors are provided as an alternative means of operating the spans, and emergency hand gears are also part of their equipment.

The total weight of one bridge is 680 tons, of which 360 tons is in the form of kentledge necessary to balance the main structure.

The whole of the bridge machinery is interlocked, so that it is practically foolproof, ensuring that the operations of locking the road gates, operating the spans and locking the bridges in position are carried out in sequence.

The superstructure of the bridges was built by Messrs. Dorman Long and Co., of Middlesbrough, and the motors which are used to operate them were manufactured by Messrs. Cromptoa Parkinson Ltd., of London.

One advantage of the new dock will be to improve the canalization of the north and central system of docks, so that the largest vessels using the central docks can enter the Gladstone Dock, at any state of the tide, and obtain access to the whole of the North End Central Docks Systems.

The settling chambers together with the suction and delivery culverts for supplying the new Corporation Electrical generating station with cooling water, are incorporated with these works, the settling chambers forming part of the west wall of the dock and the river wall. These works were constructed by the Dock Board for the Liverpool Corporation.

Work is now proceeding on the widening of the passage between Trafalgar Dock and the West Waterloo Dock from 50-ft. to 60-ft. and on the deepening of the passage so that the height of water over the sill on spring tides will be 26-ft. 4-in., the same as in the passages giving access to the docks from the north end.

The whole of these works were carried our departmentally by the Mersey Docks and Harbour Board, under the direction and to the design and specifications of Mr. T. D. Norfolk, M.Inst.C.E., Engineer-in-Chief.

Scottish Harbour Notes

Clyde Lighthouses Trust.

IT is reported that during the first eight months of the financial year the revenue of the Clyde Lighthouses Trust was down by £1,733, but of this decrease £1,037 was due to the increased discount which the Trust had allowed applying to the first three months of the year; thus making what might be called a trading decrease of only £696 over the period specified. This information was imparted at a recently-held meeting of the Trustees, at which important business was under consideration. It was intimated that a letter had been received from Messrs. Thomas Dunlop and Sons (in their capacity as Lloyd's agents) stating it was necessary that they should get information with regard to casualties to vessels as promptly as possible, and suggesting that the lighthouse-keepers at stations where a telephone was installed should be asked to telephone Messrs. Dunlop any information which they might have with regard to casualties. It was agreed to accede to this request on the footing that the Trust accepted no responsibility either for the information telephoned or for any neglect in not telephoning information. Regarding the dazzling effect to seaward which the electric lights of Dunoon Esplanade had on vessels, a letter was submitted from the Board of Trade stating that Dunoon Town Council had now caused the electric lights in question south of Dunoon Pier to be shaded seaward.

Improvements to Crinan Canal.

Extensive improvements are to be carried out on the Crinan Canal at an estimated cost of £60,000, and this work (which is now in progress) will take at least eighteen months to complete. To enable vessels to enter the Canal at all states of the tide a new sea lock costing £40,600 is under construction at Ardrishaig, where a temporary road bridge has just been completed over the canal, as the highway at this section is being broken up. At the Crinan end of the canal the sea lock is being extended, but it is felt, however, that something must be done soon to reconstruct the entire canal which is falling into a state of disrepair. In an interview at Crinan, Mr. F. A. Bly (canal superintendent) said that the daily leakage of water from the locks was tremendous. These locks are supplied by hill reservoirs, and there was a wastage of millions of gallons of precious water during the summer months when the canal was at its lowest level. In prolonged dry spells, too, the canal has to be closed on account of the water shortage. "It is unlikely," added Mr. Bly, "that the canal will be closed this summer as the rainfall in the district for the past six months is above the average of previous years."

Clyde Navigation Trustees and Lower Harbour Charges.

Clyde Navigation Trustees at a recent meeting unanimously approved of a minute of the Rates Committee which recommended that no change be made in the harbour charges for certain classes of shipping. The Rates Committee have had under consideration a communication from the Anchor Line giving particulars of short coastal cruises to be run by certain of the company's steamers during the summer months between arrivals and departures on their normal voyages to New York, and asking, in the circumstances, a concession in the coastwise tonnage dues. The Committee, however, could not see their way to grant any reduction. The question of charges made on vessels remaining in the harbour over thirty days was also examined, and, after hearing the comparative charges made at other ports, the Committee were of opinion that no action should be taken.

Glasgow and Extra Freight Charges.

At a recently-held meeting of Glasgow Chamber of Commerce a letter was submitted from a local firm stating that recently they had several shipments by a line of steamers from Glasgow to New York, and transhipped there for delivery to Central American ports, and that the rate was 15s. per ton higher than shipments by the liners from Liverpool or London via New York. It was also urged that the payment of extra freight from Glasgow on shipments was a handicap to shippers from this district. After full consideration it was resolved to leave this matter in the hands of a small committee with powers to make such representation as they considered desirable in the interests of Glasgow. Subsequently this Committee met with representatives of the Anchor Line and discussed the question with them. The representatives of the Anchor Line stated that this was not a matter over which they had any control, but was dealt with by the West Indian Conference, which treated London, Liverpool, and Hull as terminal ports and that Glasgow, Bristol and Southampton were required to pay pre-terminal charges. It has been unanimously decided that the Chambers of Commerce in Bristol and Southampton should be invited to co-operate with the Glasgow Chamber in an endeavour to have the handicap imposed on those ports removed.

Fraserburgh Revenue Down.

At a recent meeting of Fraserburgh Harbour Board is was reported that the revenue for the month of May was £766, as against £1,314 for the same period the previous year, and the chief reason for this difference (it was explained) was that boats had begun the herring fishing later this year. It was further reported that the revenue for the first seven months of the financial year amounted to £3,831, as against £4,773 for the corresponding period last year.

Bruce Peebles and Co., Ltd., Edinburgh

Changes in Management

Mr. G. L. Kirkpatrick, M.I.E.E., has been appointed General Manager of Bruce Peebles and Co., Ltd., Electrical Engineers, East Pilton, Edinburgh. Mr. Kirkpatrick has resigned his position as a member of the Directorate and the Staff of Asea Electric Limited, 5 Chancery Lane, W.C.2.

Mr. C. J. Hunt, Chief Engineer, has been appointed Assistant Manager of Bruce Peebles and Co. Ltd.

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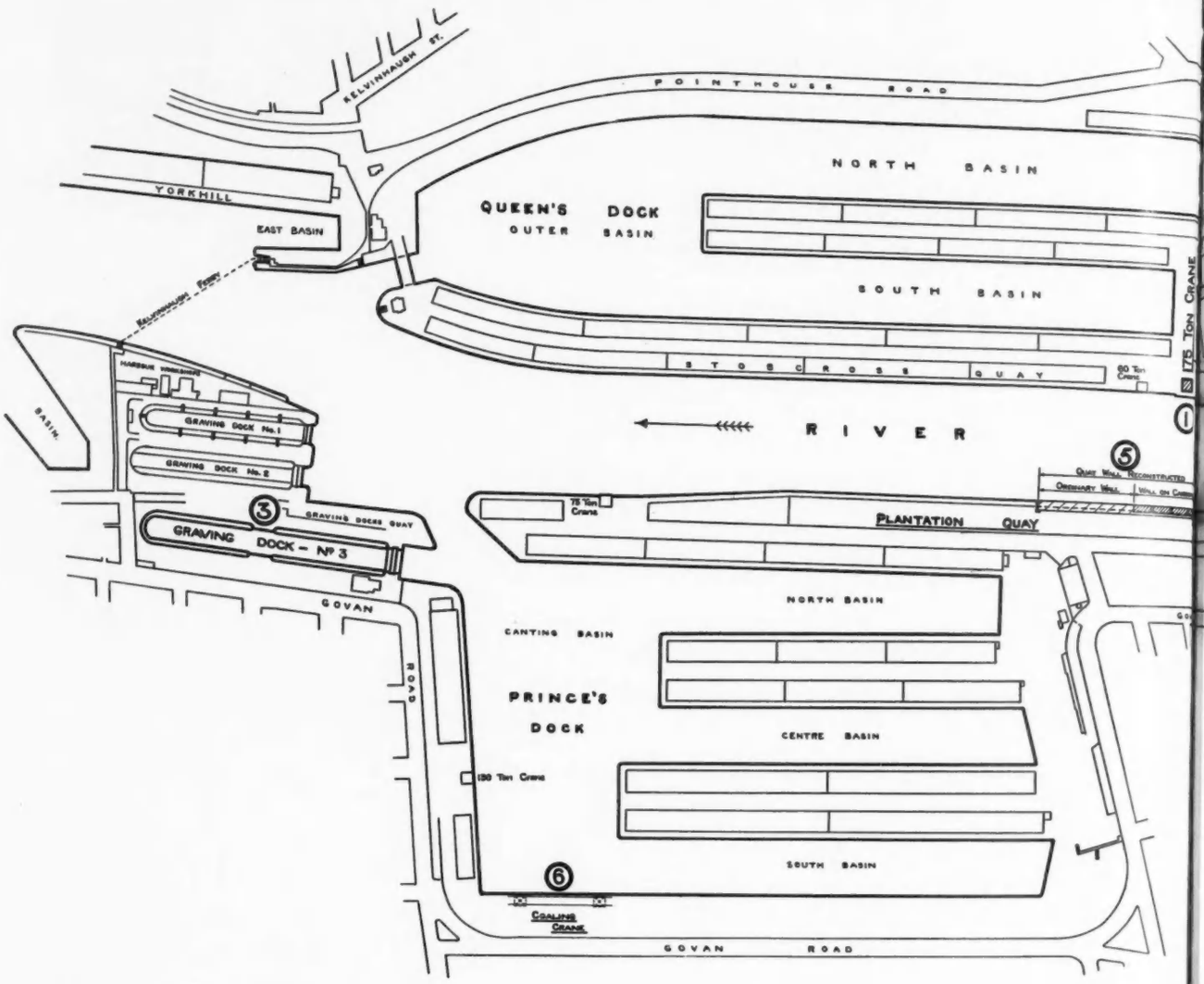
VAR GOD ARE ROPA "THE DOCK AND HARBOUR AUTHORITY" NAR ANNONSORERNA TILLSKRIFVAS.

Recent Improvements and Reconst

By A. [illegible]RDNE



THE improvement and development of the River Clyde during the first half of the last century is one of the romances of maritime engineering in this country. The history of those early pioneer years has been so often referred to that it is without doubt familiar to every engineer whose work has brought him in contact with the great industries of Glasgow and the west of Scotland, and to none more so perhaps than the members of this Institution, whose professional interests are in a large measure bound up with and dependent upon the subsequent improvement and development of the river and harbour of Glasgow. The object of this paper is to indicate some of the quite recent improvements which have been made, either in the way of improving facilities or developing the work in connection with the river which has now been carried on almost continuously since the Clyde became a navigable highway to the sea. The Author does not propose to deal in any way with the construction of the new dock at Shieldhall which was opened in July of last year, but will confine himself to other concurrent works which have proceeded simultaneously with the construction of that dock during the last three years. Fig. 1 shows the general layout of the docks and harbour, and the works to be described are indicated therein and are referred to in the numerical order given in the plan.

Stobcross Quay: Foundations for 175-ton Cantilever Crane.

This crane has been erected to replace the present 130-ton steam crane on Finnieston Quay, in view of the demolition of the present crane being rendered necessary by the proposed Bridge at Finnieston. The new crane, which is situated 536-ft. west of the centre line of the proposed bridge, is electrically operated and is of the hammerhead cantilever type with two hoists. The main hoist has a maximum lifting capacity of 175 tons at 85-ft. radius, and is also capable of lifting 80 tons at the maximum radius of 144-ft. The auxiliary hoist has a maximum lifting capacity of 30 tons at a radius of 148-ft. Both hoists are capable of lifting 150-ft. above and 30-ft. below cope level. The revolving portion of the crane is carried on a tower 45-ft. square, the height above cope to the main race being 120-ft., and to the travelling carriage rail 165-ft. A resulting maximum load of 570 tons may occur at the foot of any leg of the tower during working conditions, or a minimum load of 100 tons.

To obtain the maximum reach beyond the quay, it was necessary either to remove part of the existing quay wall or to incorporate it in the new crane foundations. This wall is founded on triune cylinders, an early type of monolith used on the Clyde, and resting on a sand bottom 50-ft. below cope level. In plan the triune cylinders resemble a clover leaf in shape and are set alternately to fit close together. There is a well for excavating in each leaf, and the whole is topped by a masonry superstructure. To remove a length of this wall completely would have been extremely difficult and costly, involving heavy cofferdam work, and it was decided to incorporate it in the crane foundations. As it is intended to dredge this berth to 24-ft. below the low water level of ordinary spring tides, or about 5-ft. below the foundation level of the existing wall, it was considered advisable to protect the wall

* Paper read at a meeting of the Institution of Engineers and Shipbuilders in Scotland on March 8th, 1932, and reproduced by their kind permission.

...conuction Works in Glasgow Harbour*

A. ...RDNER

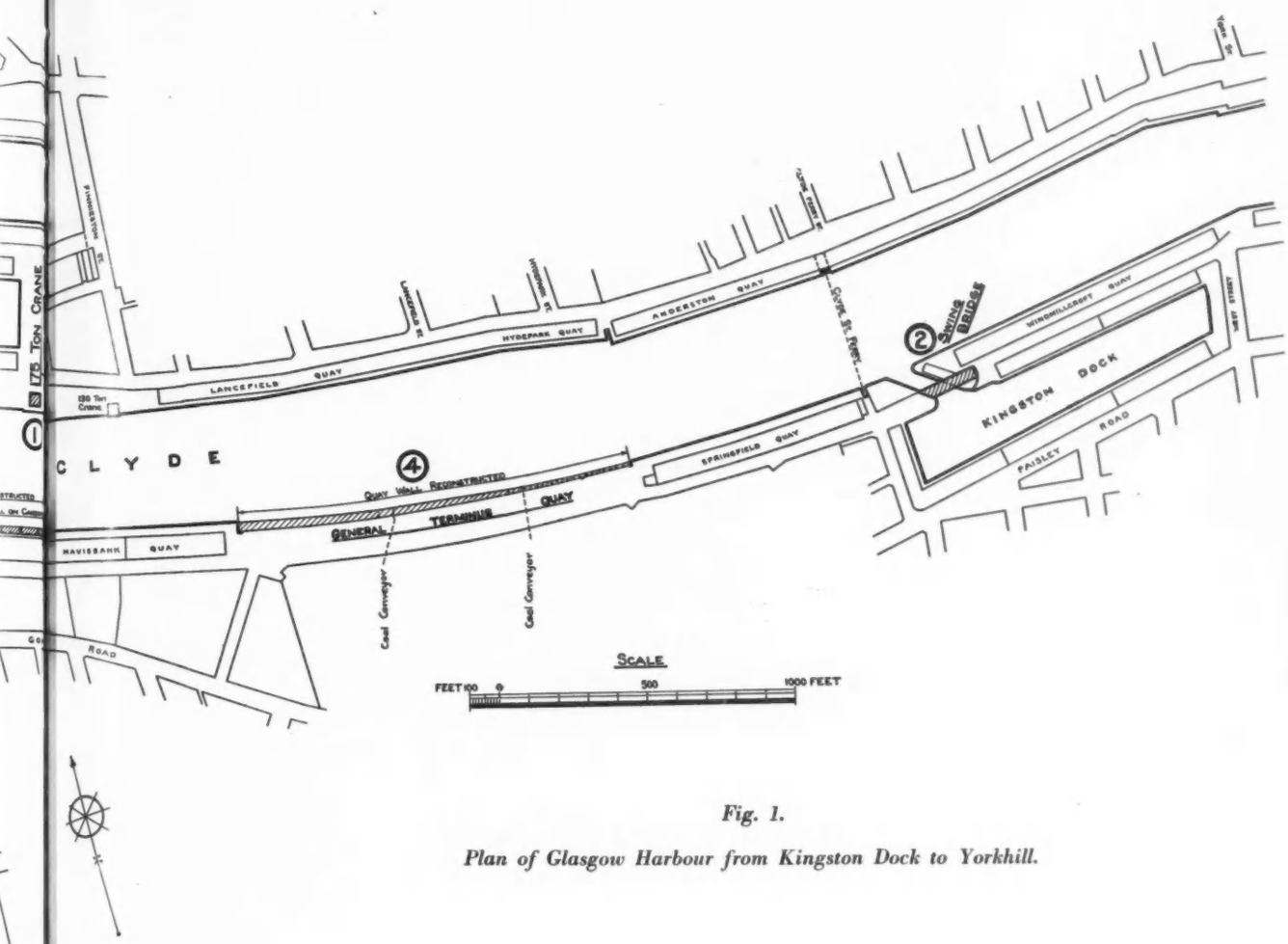


Fig. 1.

Plan of Glasgow Harbour from Kingston Dock to Yorkhill.

by reinforced concrete sheet piling, driven to a depth of 12-ft. below the existing foundation level. The piles are 10-in. thick by 20-in. broad. One pile in six is carried up to the cope, the remaining five piles being finished off just below ordnance datum. The long piles are 60-ft. in length and the short ones 45-ft. A provision of the contract was that the sheet piles were to be driven before any caisson sinking was done. A reinforced concrete beam caps the long piles and the cope has been moved forward on to this beam.

The new foundations consist of steel caissons, sunk under compressed air, at each leg of the tower. Under each of the back legs a circular steel caisson, 20-ft. in diameter, was sunk to the level of the existing wall foundation. Under each of the front legs a rectangular steel caisson 30-ft. by 10-ft. was sunk as close to the existing wall as possible, and to the same level. Sinking under compressed air was adopted to prevent disturbance of the existing foundations. The structural details of the caissons are the same, apart from the shape. The working chambers are 7-ft. 6-in. high with sloping sides, the roofs of the working chambers being reinforced with plate girders 2-ft. 6-in. deep. In the circular caissons there are 12 radial plate girders, and in the rectangular caissons they occur at 4-ft. centres. The cutting edge plates are 1-in. thick by 15-in. deep attached to 6 by 6 by $\frac{5}{8}$-in. angles. The outer skin plates of the lower part of the caissons are 5/16-in. thick, all other skin plates being $\frac{1}{4}$-in. thick. The vertical angles in the lower part of the caissons are 3 by 3 by $\frac{3}{8}$-in., and the horizontal angles in the upper part are 5 by 3 by $\frac{3}{8}$-in., with 3 by 3 by $\frac{3}{8}$-in. stiffener angles. The skin plates overlap 3-in. on the angles. The air shafts were 3-ft. 8-in. in internal diameter. Fig. 2 shows a cross section through the caisson foundations. The concrete linings of the circular and rectangular caissons are 3-ft. 6-in. and 2-ft. 6-in. thick respectively, suitably reinforced. Ties are provided between the front and back caissons and between the two back ones. These ties are 24-in. by 15-in., and contain 8 bars, $1\frac{1}{2}$-in. in diameter, giving a safe working load of 101 tons. The tie steel is carried well into the caissons in each case.

At each front caisson the superstructure of the existing wall was removed over a length of 34-ft. to about 15-ft. below cope level. The new crane seat was then built over the existing wall and the new caisson with suitable reinforcement. The two circular caissons took 30 and 28 working days respectively to sink from start to finish, the maximum air pressure required being 12 lb. per sq. in. The pressure was eased from 12 lb. to 9 lb. to allow the caissons to sink the last 9-in., this being equivalent to 60 tons of additional kentledge. Water kentledge was run into the hollow centres of the caissons around the air shafts. The total sinking weight of the caissons including air locks and water kentledge was approximately 587 tons. The upward force of the air pressure at the final sinking was 242 tons, the balance in favour of sinking being 345 tons. This gave a unit resistance of 4.5 cwt. per sq. ft. of effective area measured on the 20-ft. diameter part of the caisson. The sinking under air lock averaged about 1-ft. of depth per shift of 10 hours. The caissons are founded on sharp compact sand.

The two rectangular caissons took 22 and 21 working days respectively to sink from start to finish. The maximum air pressure required in this case was 14 lb. per sq. in. The pressure was eased to 9 lb. per sq. in. to allow the caissons to sink, this being equivalent to an added kentledge of 95 tons. The cutting edges of these caissons fouled some of the old cast iron shoes of the triune cylinders which were out of line. These projections were cut away to let sinking proceed and

Recent Improvements and Reconstruction Works in Glasgow Harbour

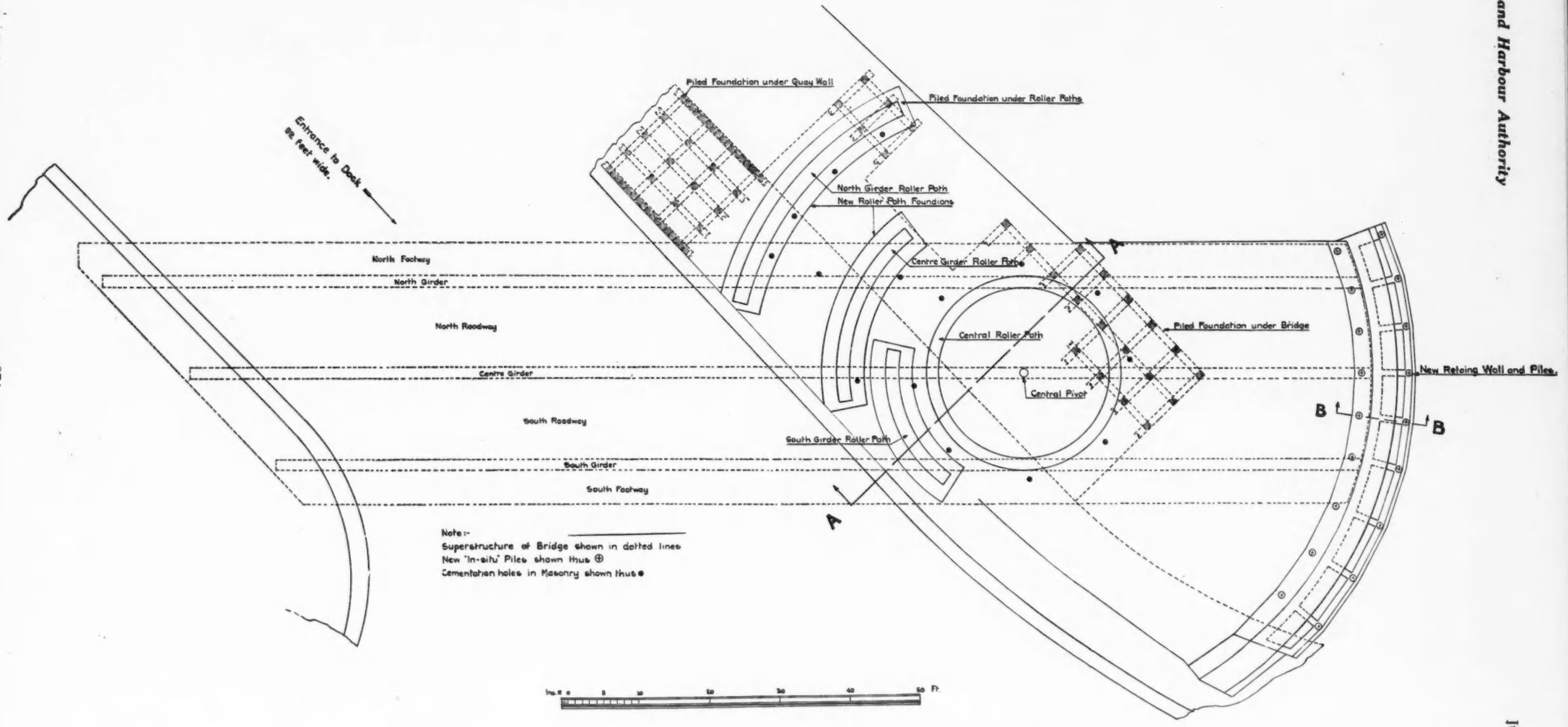


Fig. 3. Kingston Dock Swing Bridge. Plan showing Details of Foundation Strengthening.

Recent Improvements and Reconstruction Works in

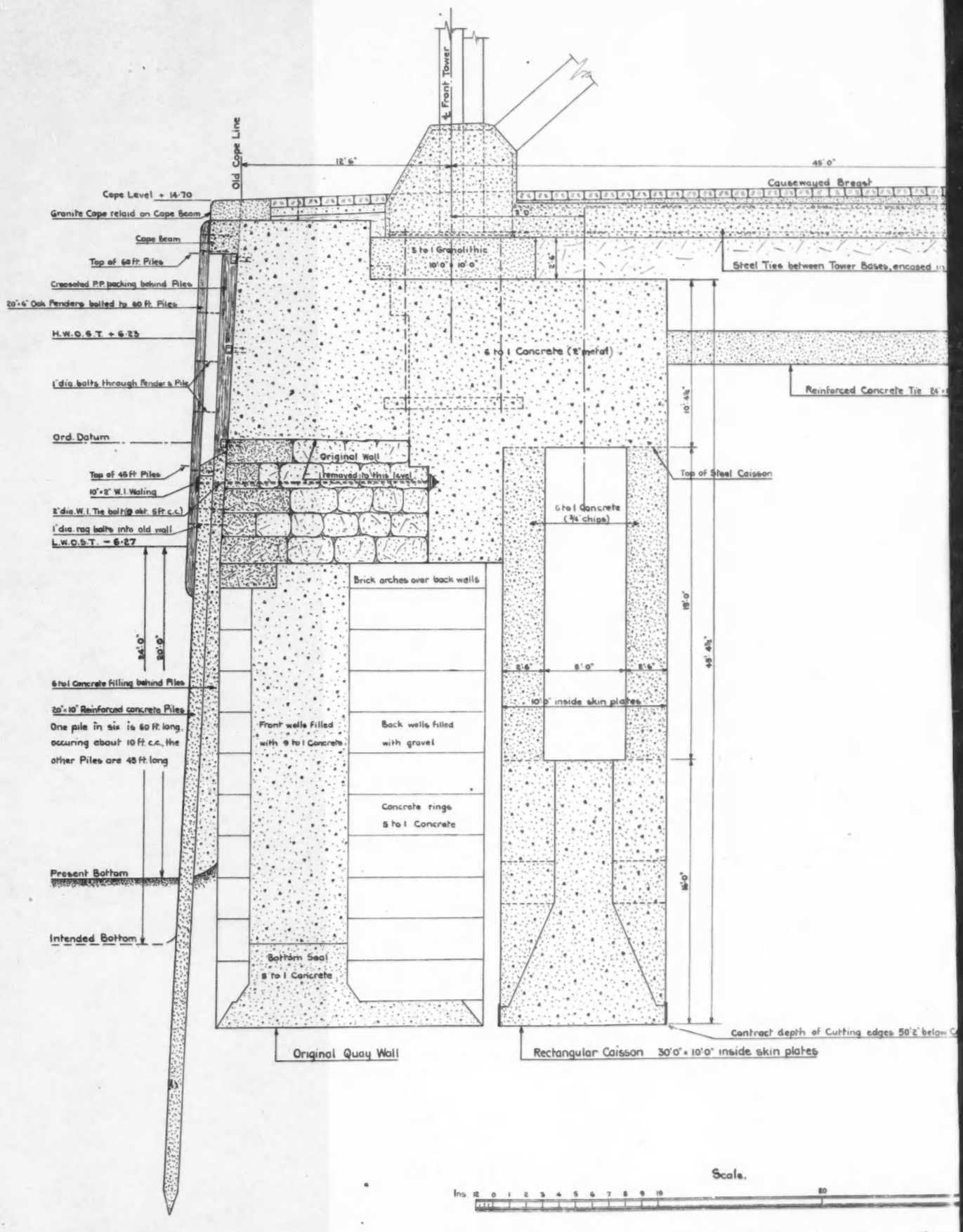
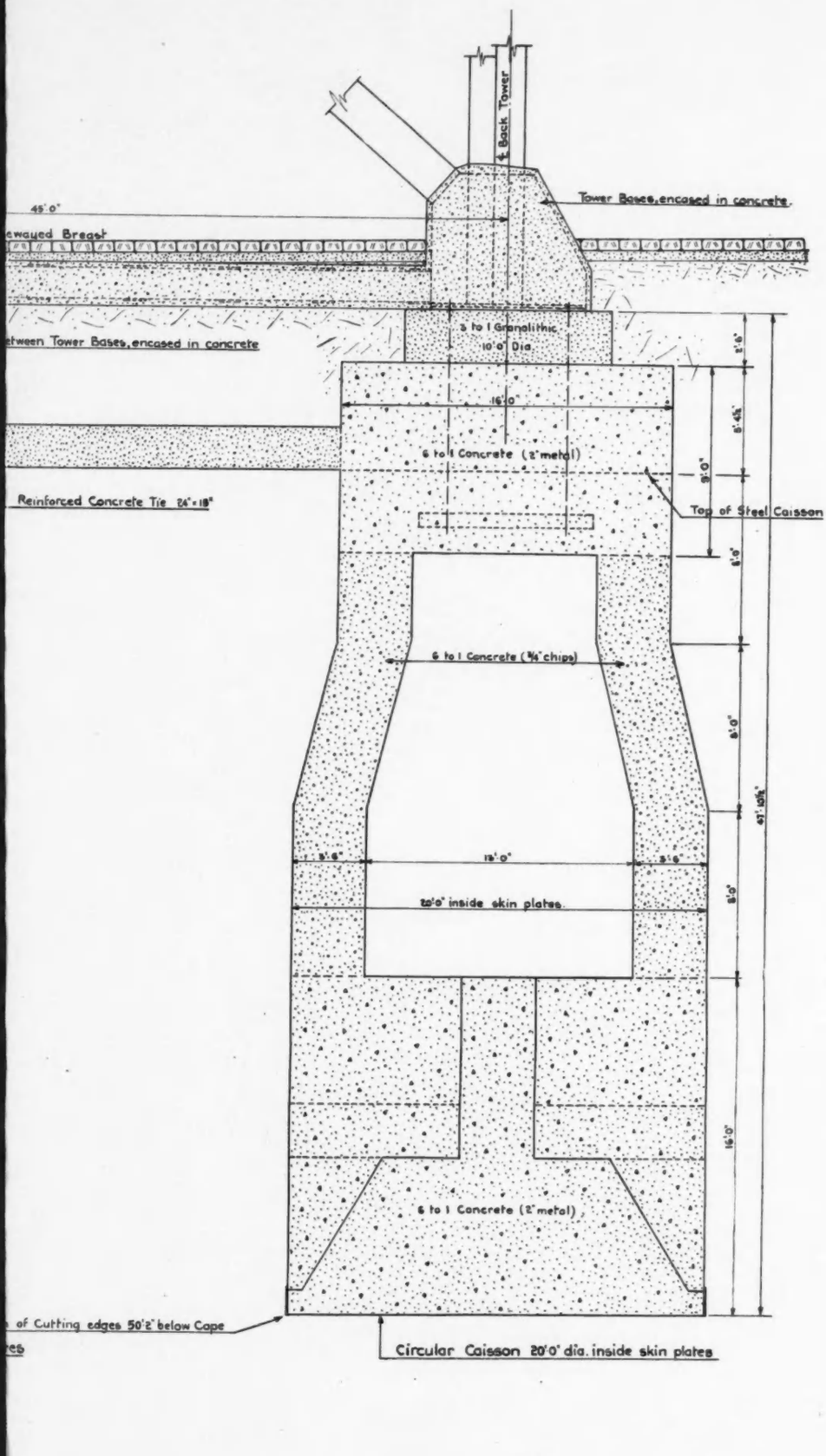

℄ Front Tower
Old Cope Line
12'6"
45'0"
Causewayed Breast
Cope Level + 14·70
Granite Cope relaid on Cope Beam
Cope Beam
Top of 60 ft. Piles
Creosoted P.P. packing behind Piles
20'×6" Oak Fenders bolted to 60 ft. Piles
H.W.O.S.T. + 6·23
1"dia. bolts through Fender & Pile
Ord. Datum
Top of 45 ft. Piles
10"×8" W.I. Waling
2"dia. W.I. Tie bolt (@ abt. 6ft c.c.)
1"dia. rag bolts into old wall
L.W.O.S.T. − 6·27
24'0"
20'0"
6 to 1 Concrete filling behind Piles
20"×10" Reinforced concrete Piles
One pile in six is 60 ft. long, occuring about 10 ft. c.c., the other Piles are 45 ft. long
Present Bottom
Intended Bottom
5 to 1 Granolithic
10'0" × 10'0"
Steel Ties between Tower Bases, encased in
6 to 1 Concrete (2" metal)
Reinforced Concrete Tie
Original Wall
removed to this level
Top of Steel Caisson
6 to 1 Concrete (¾" chips)
Brick arches over back walls
Front wells filled with 9 to 1 Concrete
Back wells filled with gravel
Concrete rings 6 to 1 Concrete
Bottom Seal 8 to 1 Concrete
8'6"
8'0"
8'6"
10'0" inside skin plates
19'0"
45'4½"
16'0"
Contract depth of Cutting edges 50'2" below C
Original Quay Wall
Rectangular Caisson 30'0" × 10'0" inside skin plates
Scale.
Ins. 12 0 1 2 3 4 5 6 7 8 9 10 20

Fig. 2. Stobcross Quay. Cross-section of foundations for 175-ton cantilever

n Works in Glasgow Harbour



for 175-ton cantilever crane.

Recent Improvements and Reconstruction Works in Glasgow Harbour—continued

the caissons founded on hard compact sand. The total maximum load on each of the back caisson foundations is 1,272 tons, giving a maximum unit load of 4 tons per sq. ft. No flotation or skin friction is allowed for in the above figures. The provision of the rectangular caissons behind the quay wall has reduced the toe pressure very considerably even when the maximum load from the crane is over one of the front towers. The action of the ties has not been allowed for in computing the maximum toe pressures. The contract for the sheet piling and caissons was carried out by Sir Wm. Arrol and Co., Ltd.

Kingston Dock Swing Bridge: Strengthening of Foundations.

This bridge, which is of the swing type, spans the entrance to Kingston Dock, and was provided to maintain street traffic between Windmillcroft and Springfield Quays when the Dock was constructed in 1867. The bridge rotates about a centre on the east side of the entrance to the dock, and has a cantilever arm reaching to the west side with a back balance to maintain equilibrium. The dock entrance is 52-ft. wide, but the clear span of the bridge is 73-ft. as it crosses the entrance on the skew. The total revolving weight of the structure is approximately 360 tons. The superstructure is wrought iron and is in a wonderfully good state of preservation.

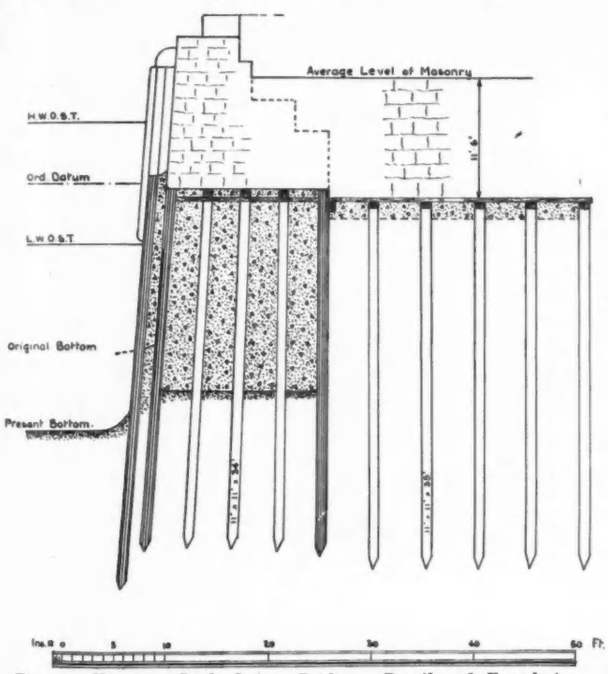


Fig. 4. Kingston Dock Swing Bridge. Details of Foundation Strengthening. Section at A-A., Fig. 3.

The operating machinery is suspended under the back end of the bridge, from which a pinion operating in a circular cast iron rack attached to the retaining wall at the back of the pit opens and closes the bridge. The foundations consist of built masonry about 11-ft. thick, resting on timber piles 35-ft. in length at about 5-ft. centres. The circular retaining wall at the back of the pit was built of masonry also carried on timber piles. The general layout of the foundations and a section through them are shown in Figs. 3 and 4. An interesting feature of the design is that in addition to the usual centre pin and roller race on which the bridge revolves, three other concentric segmental tracks are provided to support each of the three main girders as the bridge revolves.

For a good many years the cast iron rack as well as these segmental tracks had been giving trouble, and required frequent repair. The retaining wall had subsided and was badly cracked, and the rack was broken in places, and it was finally decided to rebuild the retaining wall in reinforced concrete on a new piled foundation, provide new roller paths and foundations, and consolidate the masonry with cement grout under pressure. Advantage was also taken of the closing of the bridge to modify the cast iron roller carriages and to supply new rollers. The adjoining quay walls and the main bridge foundation were in such a condition that it was considered unsafe to drive piles in the usual way with a heavy pile hammer. To obviate this a contract was let for the sinking of 18 piles by the Francois cementation process. These piles are placed in pairs under each counterfort of the wall as shown in Fig. 5. They were sunk and cemented in situ before the old wall was removed. The bridge was kept open for traffic until all the piling was completed, this work being mostly done on night shift and at week-ends, a temporary timber bridge over the back trench being provided to allow for the passage of traffic during the day.

The procedure adopted in sinking the piles was as follows:

Trenches were excavated behind and in front of the old wall to a depth of 11-ft. below cope level. A length of steel casing 14-in. in internal diameter and 3-ft. 6-in. in length was placed in position with its lower end about 2-ft. below the bottom of the trench. Inside this a casing 12-in. in internal diameter was placed and sunk to a depth of 16-ft. below the trench, the casing tubes being in 4-ft. lengths screwed together. Suitable boring tools were operated from a light piling frame above cope level, using gravitation water. The sand excavated flowed over the top of the casing as sinking proceeded. When this 12-in. casing had been sunk a casing 10-in. in internal diameter was sunk to the final depth. A light hammer about 5 cwt. in weight was used to drive the casings as required. The depth of the piles below trench bottom varied from 30 to 31-ft. with an average of 30-ft. 4½-in. for the 18 piles sunk.

On the completion of sinking, gravel was filled in to a height of 2-ft. above the bottom of the tube. Two ¾-in. diameter reinforcing steel bars and two grouting pipes 1-in. in diameter were driven into this gravel and fixed in position at the top. A hammer about 4¼ cwt. in weight with 4 holes in it and threaded over the reinforcing bars and grouting pipes, operated by the winch, was used for ramming the gravel inside the casing. The casing was extracted as the gravel was filled in and rammed, care being taken to maintain a good cover of gravel over the lower end of the casing. When the gravel was within 1-ft. of the top of the pile the ground was excavated 1-ft. in depth and 2-ft. in diameter around the pile, the casing removed and a concrete cap formed in the excavated ground. After this cap had set, the injection of cement under pressure was commenced through one of the pipes. Both pipes were perforated by ¼-in. holes at the lower end. When cement grout appeared at the top of the second pipe a plug was put into it and the injection of grout continued until it appeared through the ground surrounding the concrete cap. The grout was supplied through a pressure pump, the average pressure required for this being 60 lb. per sq. in. As the gravel had to be clean and well graded, Loch Sunart gravel from 1-in. to ¼-in. was used. The action of ramming the gravel as the casing is withdrawn causes an enlargement of the piles, the average volume increase for the 18 piles being about 7½ per cent. Fig. 6 shows the pile in section as the gravel is being filled in and the casings withdrawn, and also a completed pile. A proportion of the grout naturally passes into the surrounding strata, in this case sand, and about 25 per cent. more cement was used than the volume of the voids in the gravel required. Altogether 17 cu. yards of gravel and 9½ tons of cement were used in the 18 piles sunk.

Sinking commenced on 8th July, 1930, and finished on 21st August, 1930, when the last of the piles was completed. Thereafter the existing masonry wall was removed and the new reinforced concrete wall constructed. Details of the reinforcement of the counterforts are shown in Fig. 5. This part of the work calls for no particular comment. A new cast iron rack was fitted to the wall, the bridge being first swung by hand until everything fitted properly. The three concentric roller paths under each of the three main girders of the bridge were anchored by rag bolts in granite bed stones, resting in turn on the sandstone masonry. The granite had worked loose on the sandstone with the result that these paths were continually giving trouble. To overcome this the bridge was blocked up on timbers, the roller carriages removed and new foundations of reinforced concrete provided. The masonry under each path was removed for a depth of 3-ft. by 6-ft. wide. The reinforcement consisted of bars ½-in. in diameter at 6-in. pitch both ways top and bottom. A sufficient number of 1¼-in. anchor bolts, in 3-in. tubes, were built into the concrete to hold down the new roller paths. The old cast iron roller carriages were constructed in such a manner that the only way to remove a roller was by making a hole in the track to allow it to drop out. They were therefore modified so that each of the rollers can be rolled out on the path. A complete set of new rollers was provided.

The masonry foundations under the bridge were badly fractured, and in order to consolidate these it was decided to drill a number of holes in various positions and to varying depths over the main foundation area, and to force grout into the fissures; 18 tons of cement was injected into them under pressure in this way. The positions of the holes are shown in Fig. 3. The pressure used during cementation varied between 30 and 70 lb. per sq. in. If the maximum pressure stated was exceeded, the top courses of masonry tended to rise. The bridge was out of commission for 86 working days. Since those remedial measures have been completed the bridge has been working in an extremely satisfactory manner.

Recent Improvements and Reconstruction Works in Glasgow Harbour—continued

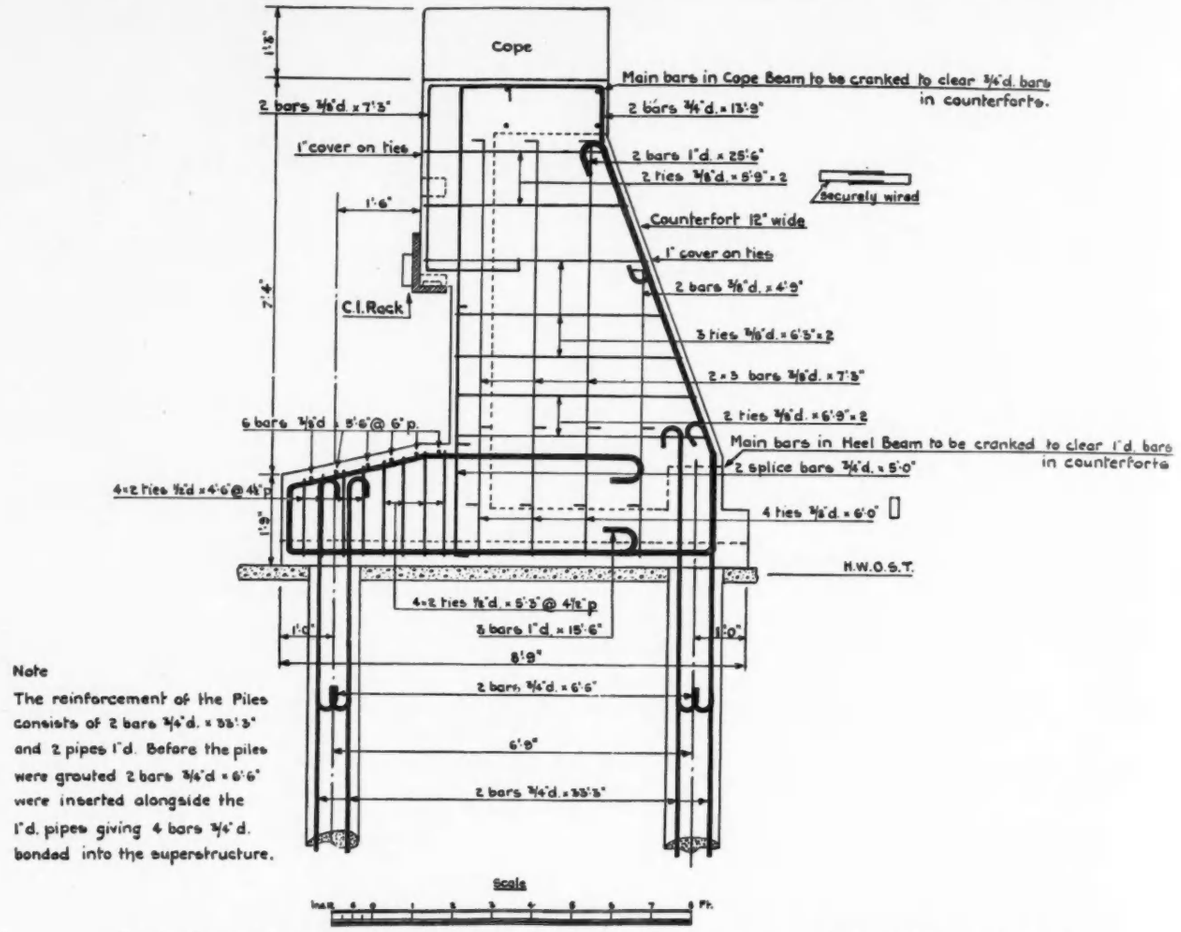

Cope
Main bars in Cope Beam to be cranked to clear ¾"d. bars in counterforts.
2 bars ¾"d. x 7'3"
2 bars ¾"d. x 13'9"
1" cover on ties
2 bars 1"d. x 25'6"
2 ties ¾"d. x 5'9" x 2
Securely wired
1'6"
Counterfort 12" wide
1" cover on ties
C.I. Rock
2 bars ¾"d. x 4'9"
3 ties ¾"d. x 6'3" x 2
2 x 3 bars ¾"d. x 7'3"
2 ties ¾"d. x 6'9" x 2
6 bars ¾"d x 5'6" @ 6" p
Main bars in Heel Beam to be cranked to clear 1"d. bars in counterforts
2 splice bars ¾"d. x 5'0"
4 x 2 ties ½"d x 4'6" @ 4½" p
4 ties ¾"d. x 6'0"
H.W.O.S.T.
4 x 2 ties ½"d. x 5'3" @ 4½" p
3 bars 1"d. x 15'6"
1'0"
8'9"
2 bars ¾"d. x 6'6"
6'9"
2 bars ¾"d. x 33'3"
Note
The reinforcement of the Piles consists of 2 bars ¾"d. x 33'3" and 2 pipes 1"d. Before the piles were grouted 2 bars ¾"d x 6'6" were inserted alongside the 1"d. pipes giving 4 bars ¾" d. bonded into the superstructure.
Scale
Ins.
Ft.

Fig. 5. Kingston Dock Swing Bridge. Details of Foundation Strengthening. New Wall, Section at B-B., Fig. 3.

No. 3. Graving Dock: Lowering of Floor.

The Clyde Trustees' No. 3 Graving Dock, which is the largest dry dock on the Clyde, was completed and opened in 1898, and a paper on its machinery and equipment was read before this Institution by the late Mr. G. H. Baxter.* It is 880-ft. in length, measured along the floor, and 83-ft. wide at the entrance, and has a depth of water over the entrance sill of 26-ft. 6-in. at mean high water of ordinary spring tides. Prior to the carrying out of the work described in this paper it was divisible, by means of inner gates, into two sections, the outer section being 460-ft. and the inner 420-ft. in length. It was thus possible to accommodate two vessels and to water or dewater the outer section independently of the inner. The floor level of the dock in the line of the keel of a vessel was 2-ft. lower than the entrance sill, except at the junction between the two sections where the floor was raised 1-ft. 6-in. higher for a length of 30-ft. to form the sill for the inner gates.

The keel blocks were originally 2-ft. 6-in. high, but owing to the trend in shipbuilding towards flatter bottomed hulls, they were increased to 3-ft. 2-in. and finally to 3-ft. 10-in. in height in order to give adequate working space below the vessels. This meant that latterly the keel blocks, when used at their full height, were standing 1-ft. 10-in. above the level of the entrance sill, and the full depth of this sill could not therefore be utilized. The available depth at mean high water of ordinary spring tides for vessels entering the dock became in consequence reduced from 26-ft. 6-in. to 24-ft. 8-in., and it was often necessary when docking larger vessels either to reduce the height of the keel blocks, giving reduced working depth under the hull, or to lighten the vessels sufficiently to clear the keel blocks with a resultant loss in stability. The inner sill was objected to because, rising as it did 1-ft. 6-in. above the general floor level of the dock, there was at all times insufficient working depth below a vessel at this point. Most of the vessels using the dock extended beyond the inner sill, and the dock was so seldom used in two sections that the inner gates were of very little value.

In view of the foregoing the Trustees decided to lower the floor of the dock by 1-ft. 8-in., making its level, in the line of the keel of a vessel, 3-ft. 8-in. below the invert of the entrance sill and at the same time to cut away the inner sill. This involved putting the inner gates out of commission, but in view of the large cost of bridging over the gate recesses, it was decided to allow the gates to remain meantime, anchoring them permanently in the recesses. There were two emptying culverts crossing the dock near the entrance which were too near the surface to permit of the floor being lowered without lowering the culverts also. It was, therefore, decided to leave the floor at the old level for a length of 73-ft. from the entrance, the " cutaway " stern of modern vessels making the higher floor level at this point immaterial. Fig. 7 shows the respective levels of the old and new floors.

As can be seen from the cross section of the dock, Fig. 8, the floor was constructed of concrete, reinforced with an arch of brickwork 6-ft. thick and surfaced on top with granite paving setts, the whole varying in thickness from 14-ft. at the centre to 10-ft. at the sides. The dock is founded on gravel and sand, and in all calculations for the strength of the floor it had to be assumed that, with the dock empty, the floor, acting as an inverted arch, should be able to withstand the full upward water pressure due to high tide in the river, which is equivalent to about 2,700 lb. per sq. ft. Fortunately there was a considerable reserve of strength in the floor, and it was possible to decrease its thickness without danger, but, in order to avoid cutting into the brick arch and reducing the thickness at the sides where the thrust of this inverted arch had to be resisted, a ledge of 6-ft. 6-in. wide was left down each side of the dock at approximately the old floor level, the drainage channels being brought nearer the centre of the dock by this amount.

Advantage was taken of the slack period due to trade depression to have this work carried out during the summer of 1931. The work to be done comprised the removal and cleaning of the granite paving setts, the cutting away of the concrete to a depth of at least 20-in. over the whole area to be lowered, the facing of this area with new concrete, the repaving of the floor and alterations to the drainage and emptying culverts. The chief problem was of course the removal of the concrete cheaply and expeditiously and without damage to the remaining portion of the floor. The dock is equipped with an air-compressor plant having a capacity of 1,200 cu. ft. per minute at a pressure of 105 lb. per sq. in. with air mains laid round the dock, and it was therefore natural that pneumatic tools should be employed. The removal of the granite setts was done very expeditiously with pneumatic

* Trans. I.E.S., 1898-99, p. 267.

Recent Improvements and Reconstruction Works in Glasgow Harbour

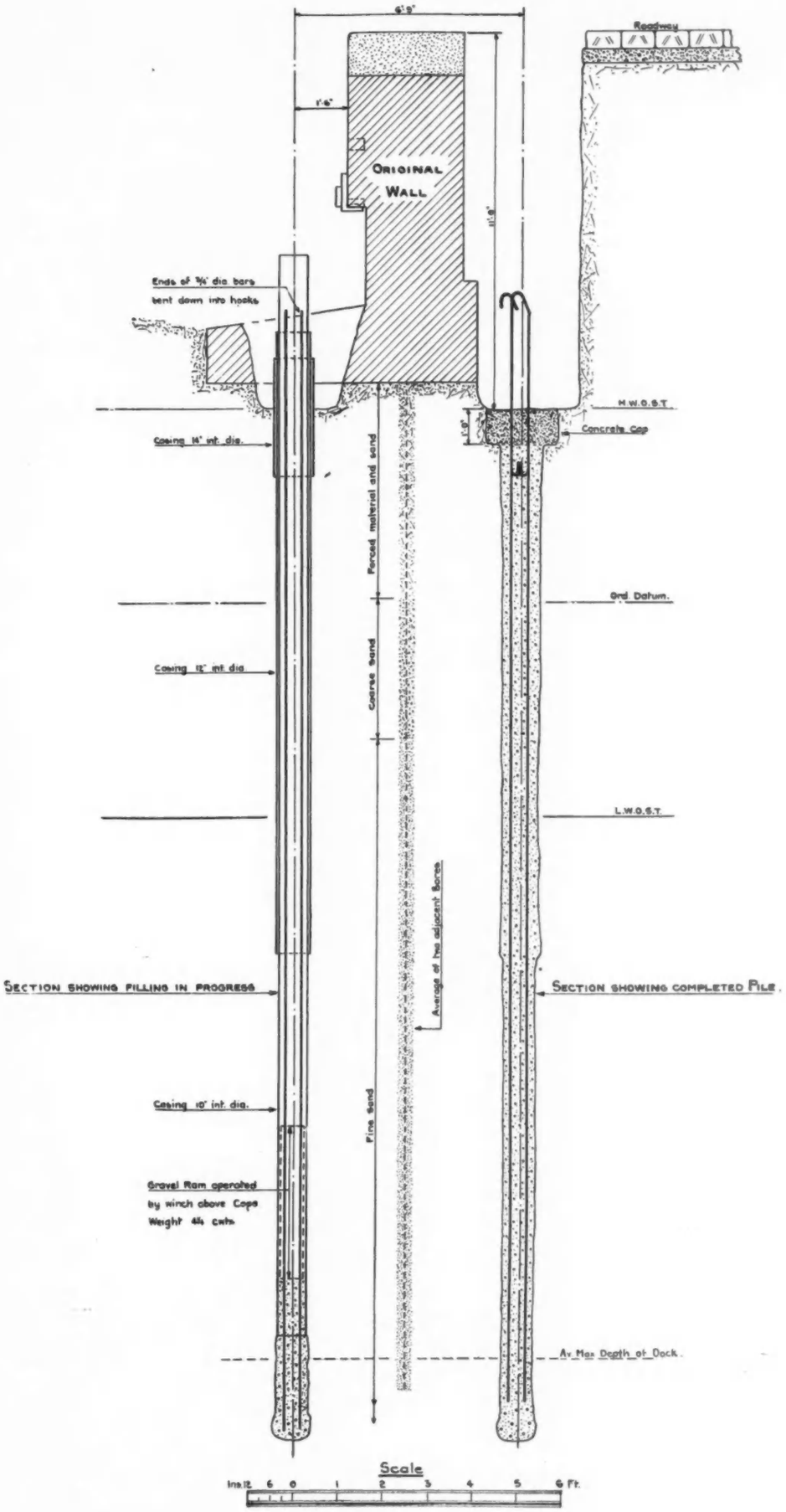

Roadway
ORIGINAL WALL
Ends of ¾" dia. bars bent down into hooks
H.W.O.S.T.
Concrete Cap
Casing 14" int. dia.
Ord. Datum.
Casing 12" int. dia.
L.W.O.S.T.
SECTION SHOWING FILLING IN PROGRESS
SECTION SHOWING COMPLETED PILE.
Casing 10" int. dia.
Gravel Ram operated by winch above Cope Weight 4¼ cwts.
Av. Max. Depth of Dock.
Scale
Ins. 12 6 0 1 2 3 4 5 6 Ft.

Fig. 6. Kingston Dock Swing Bridge. Details of "in situ" Piles.

Recent Improvements and Reconstruction Works in Glasgow Harbour—continued

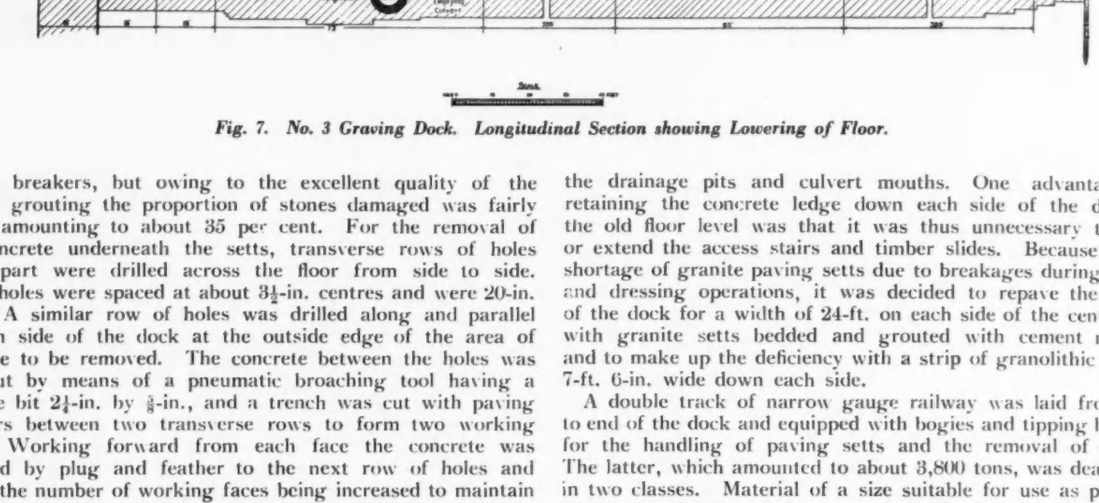


Fig. 7. No. 3 Graving Dock. Longitudinal Section showing Lowering of Floor.

paving breakers, but owing to the excellent quality of the cement grouting the proportion of stones damaged was fairly large, amounting to about 35 per cent. For the removal of the concrete underneath the setts, transverse rows of holes 3-ft. apart were drilled across the floor from side to side. These holes were spaced at about 3½-in. centres and were 20-in. deep. A similar row of holes was drilled along and parallel to each side of the dock at the outside edge of the area of concrete to be removed. The concrete between the holes was then cut by means of a pneumatic broaching tool having a concave bit 2¼-in. by ⅜-in., and a trench was cut with paving breakers between two transverse rows to form two working faces. Working forward from each face the concrete was removed by plug and feather to the next row of holes and so on, the number of working faces being increased to maintain satisfactory daily progress. In order to accelerate progress and reduce the cost, a trial was made of exploding small charges of gelignite in horizontal holes 2-ft. 6-in. deep and 3-ft. apart, and specially drilled 2-in. above the bottom of the working face. The results were satisfactory, and this method was therefore adopted, but the drilling of the transverse rows of holes was continued, as a trial showed that blasting without this row of holes was much less efficient. The broaching, however, was only continued along the sides where a plumb face was required. The charge per hole consisted of 1 to 1½ cartridges of polar ammon gelignite No. 2.

The sill at the inner gates was formed of dressed granite blocks 2-ft. 6-in. wide by 4-ft. 6-in. deep, and alternately 2-ft. 6-in. and 3-ft. 6-in. in length. These stones were bedded in the concrete at a depth of 3-ft. below the general floor level of the dock. By sacrificing one or two blocks and cutting away the concrete round the others, it was found that they could be removed whole for use in the work and elsewhere.

After the floor had been reduced thus roughly to the required depth the surface was dressed and all high parts removed by paving breakers, after which a levelling coat of concrete was applied and the granite setts relaid. Meantime the new drainage channel was being formed, and the concrete ledge between this and the bottom altar step along each side of the dock was being finished with a fall to the new channel and surfaced with concrete; and the necessary alterations were being made to the drainage pits and culvert mouths. One advantage of retaining the concrete ledge down each side of the dock at the old floor level was that it was thus unnecessary to alter or extend the access stairs and timber slides. Because of the shortage of granite paving setts due to breakages during lifting and dressing operations, it was decided to repave the centre of the dock for a width of 24-ft. on each side of the centre line with granite setts bedded and grouted with cement mortar, and to make up the deficiency with a strip of granolithic paving 7-ft. 6-in. wide down each side.

A double track of narrow gauge railway was laid from end to end of the dock and equipped with bogies and tipping buckets for the handling of paving setts and the removal of debris. The latter, which amounted to about 3,800 tons, was dealt with in two classes. Material of a size suitable for use as pitching on the sloped dykes of the river was loaded into punts by means of a 7-ton steam crane specially erected at the east end of the dock. These punts were towed down the river and the material deposited where required. The balance of the debris was lifted from the bottom of the dock by means of the existing permanent 25-ton travelling electric crane on the north side of the dock. A proportion of it was loaded into wagons and taken to Plantation and General Terminus Quays, where it was used as filling behind the new quay walls which are in course of construction at these places; and the remainder was loaded direct into steam hopper barges and discharged at the deposit area for river dredgings.

The work was done departmentally and was carried out continuously day and night, the men working in three shifts of 8 hours each. The number of men employed during the progress of the work averaged about 242 but rose to a maximum of 300 during the month of July. The labour was obtained entirely through the Govan Labour Exchange and was, in general, quite satisfactory. The work was commenced on 13th April, and was completed, except for a few minor details, by 12th September, and the first boat was docked at 8 a.m. on 21st September. Fortunately no difficulties arose which had not been anticipated, and there was no leakage of water through the floor in spite of the drilling and blasting operations.

(To be continued.)

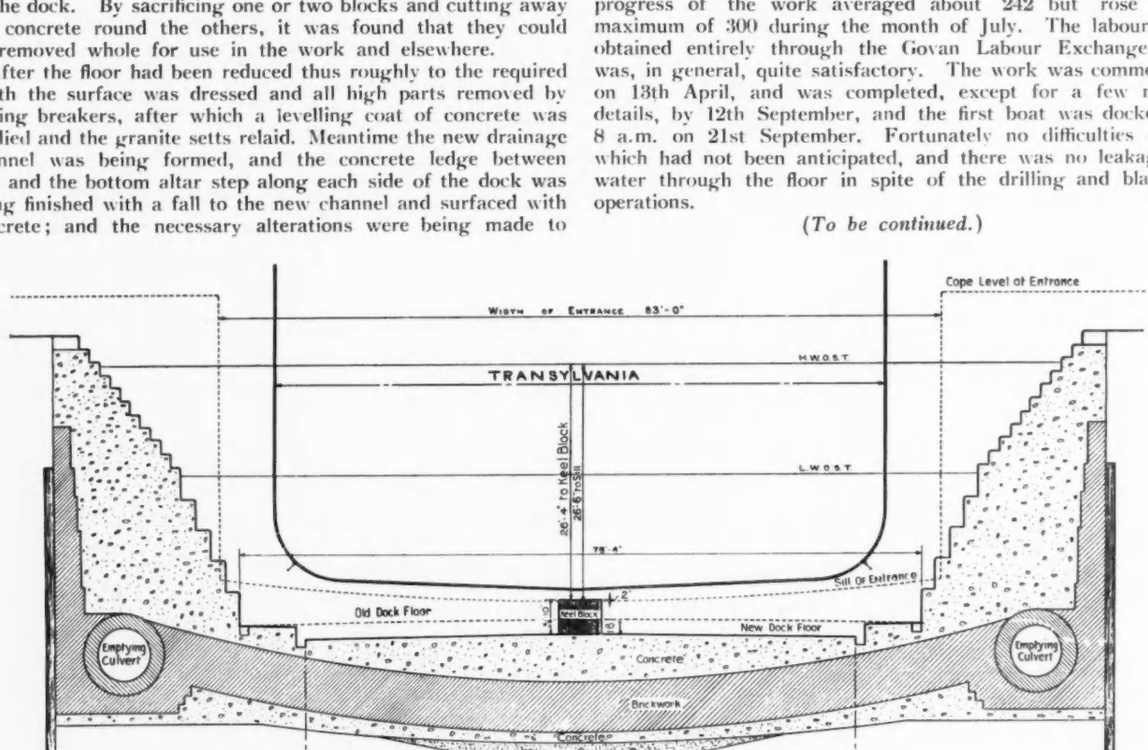


Fig. 8. Cross Section of No. 3 Graving Dock.

Notes from the North

Herculaneum Dock, Liverpool.

MERSEY DOCKS AND HARBOUR BOARD has confirmed the recommendation of the Docks and Quays Committee for closing the north river entrance of the Herculaneum Dock and giving the engineer authority to shore up the gates at the north river entrance and to place additional shores at the gates of the south river entrance, at an estimated cost of £300. The south river entrance is already closed to shipping.

Caernarvon Harbour Trust.

It was reported at the last meeting of the Caernarvon Harbour Trust that there was an increase of 1,613 tons in slate shipments during April, and during the three months of February, March and April there was an increase of 3,911 tons. In his monthly report the Superintendent (Capt. Richard Jones) said the past winter had been a very fortunate one in respect of the outer buoys, not one having broken adrift throughout the past twelve months. That, he believed, constituted a record.

Preston Dock Record.

Recently, a record discharge of a cargo of wood pulp was made at Preston Docks. The Swedish steamer "Magna," a regular trader between Preston and Sweden, arrived with 3,067 tons of wood pulp for discharge. Gangs at once set to work and unloaded the cargo in 14½ hours. During the first day, 1,783 tons were unloaded in eight hours, the highest quantity ever discharged from one steamer in one day at the port.

Busier Docks.

Trade returns show that Liverpool Docks were busier in April. The tonnage of ships leaving the United Kingdom with cargo for abroad decreased by 221,000 tons, or 4 per cent., to 5,239,000 tons, compared with April, 1931, yet Liverpool departures increased by 32,000 tons, or 5.3 per cent. Liverpool departures in the coasting trade also increased, the total being 468, an aggregate of 147,000 tons and an increase of 11,000 tons, or 8.1 per cent.

Dock Rating Appeal.

Messrs. Lever Bros., Ltd., as owners of the Bromborough Dock, made a successful appeal at the Cheshire Quarter Sessions against the rating of the dock. The appeal was relative to two hereditaments—the rateable value of land covered by water having been assessed at £4,200 and to the dock buildings at £2,000. Mr. R. M. Montgomery, K.C., for the company, said the only question was whether the dock was a freight transport hereditament. The definition of this in the 1928 Rating and Valuation Act was: "A hereditament occupied and used wholly or partly for dock purposes as part of a dock undertaking, being an undertaking whereof a substantial proportion of the volume of business is concerned with the shipping and unshipping of merchandise not belonging to or intended for the use of the undertakers." The dock had been in use since February, 1931, and up to September 30th, 1931, the percentage of the import and export traffic in respect of certain firms were—Joseph Crosfield and Sons, 2 per cent.; Lever Bros., Ltd., 9 per cent.; Ocean Harvest, Ltd., 1 per cent.; Southern Whaling and Sealing Co., Ltd., 1 per cent.; Unilever, Ltd., 85 per cent.; sundry firms, 2 per cent.; less than 1 per cent. in respect of William Gossage and Sons, Ltd. Only 9 per cent. belonged to the undertakers, Messrs. Lever Bros.

With regard to the words "or intended for the use of" Unilever, Ltd., were consignees for 85 per cent., which went to Joseph Crosfield and Sons, Wm. Gossage and Sons, Hodgson and Simpson, Ltd., R. S. Hudson, Ltd., Lever Bros., and Planters' Foods, Ltd. It was clear that a large proportion of the business was connected with merchandise not intended for the use of the undertakers, Messrs. Lever, Bros. There were, of course, certain holding relations in connection with shares between several of those companies and Lever Bros., and the suggestion made by the Assessment Committee was that whatever merchandise was for the use of a company in which directly Lever Bros. had some interest, was to be regarded as being for the use of Lever Bros. The appellants' contention was, however, that legally each company was a separate entity.

Mr. Maxwell Fyfe, for the Bromborough Council, submitted that the business of the dock was all part of the activities of what was substantially one undertaking. For the purposes of the Rating Relief Acts the Court was entitled to look at actualities and ignore legal technicalities. Under the Bromborough Dock Act, apart from the general law, the use of the dock was restricted to goods of Lever Bros. and those so intimately connected with them as to be indistinguishable. The appeal was allowed with costs. The hereditaments will be placed in the special list as freight transport hereditaments.

Bromborough Dock.

There was a new development at Bromborough Dock a few days ago. When the steamer "Meridian," of the United Africa Company, was loaded by Messrs. Lever Bros., Ltd., at their new Bromborough dock with cargo for West Africa, this was the first time that goods for shipment through the new dock arrived by rail at Port Sunlight. The experiment is expected to have important results. Bromborough Dock was opened for traffic about 14 months ago.

Twenty-five delegates to the International Congress of Local Authorities, who came from all parts of the Continent, recently visited Port Sunlight and Birkenhead, and after inspecting the new Bromborough Dock viewed the bridge across the neck of Bromborough Pool, built in readiness for traffic through the new Mersey Tunnel.

Mersey Tunnel Progress.

To the June meeting of the Mersey Tunnel Joint Committee it was reported that the four current contracts, now employing 370 men, were all approaching completion, less than half of 1 per cent. of the working remaining unfinished. Work now being done includes the Morpeth Dock and George's Dock emergency exits, concrete lining, footpath construction, fixing of lighting fittings, and gunite rendering. On ventilation works in the tunnel £214,000 has been spent. The ventilation fan contracts are said to be making good progress, £27,876 having been certified out of a contract total of £58,832. It is understood that the Committee have found it impossible to arrange even an approximate date for the opening of the tunnel for traffic, and it is stated that another eighteen months will probably be required for completion, the delay being caused by the slowness of the work in connection with ventilation. The designs and elevations of the six ventilation stations which are to be erected—three on each side of the river—have been settled, and the work of construction is in hand.

Lower Master Porterage.

The Traffic Committee of the Mersey Docks and Harbour Board has submitted a recommendation to adopt a reduced master porters' rate of 1s. 5d. per cask, exclusive of weighing (less the percentage deduction for the time being in force) on casks (empty) of flour delivered after having been stowed on the quay.

Morpeth Dock, Birkenhead.

The Great Western Railway Company is putting up a concrete building on the dock wall near to the Morpeth Dock entrance. This is part of the company's scheme for the reconstruction of their Birkenhead goods depot, which has been in progress for some time. It is erected over what was once a small dock, an arm of the Morpeth Dock. Already a new goods station has been erected, and the building now in course of construction will be not only a huge warehouse but also an office for the staff.

Poulton Bridge, Birkenhead.

Poulton Bridge connecting Birkenhead and Wallasey, on which Mersey Docks and Harbour Board charges a toll, has been the subject of a lot of controversy arising from a demand for the abolition of the tolls. Recently the Works Committee of the Dock Board passed a resolution authorising the engineer to provide new office accommodation, etc., for the toll collector, and for a dock gateman on the south side of the Poulton Bridge, and to remove the toll gate to a position adjacent thereto, also to demolish the old residence and toll office, at a total estimated cost of £349. Objection to this was raised at the Dock Board meeting by Alderman McVey, who gave expression to the view that when the big new dock is completed this year the bridge should be free from tolls, otherwise it was bound to interfere with the business and trade which would be connected with that particular dock. Poulton Bridge should have been toll free many years ago. He asked the Board to take into consultation Birkenhead and Wallasey authorities, with a view to arriving at a common understanding to remove the toll. Mr. H. F. Fernie (chairman of the Works Committee) replying, said the expenditure proposed was a small amount and was principally for the dock gatemen who would have to operate the gate. They could not give the tolls up without they got some adequate remuneration for them. Mr. Richard D. Holt (chairman) said there was not the slightest reason why the trade of the port should be burdened with the loss of revenue—something like £1,000 a year—which they were getting from the bridge simply for the convenience of the inhabitants of Birkenhead and Wallasey. If Birkenhead and Wallasey inhabitants wanted the bridge free from tolls, they should come forward and buy up the tolls at a reasonable price. They had never done so. If they freed the bridge from tolls they had got to have so much more dock dues and town dues on shipping.

Notes from the North—continued

Workington Dock.

Trade has been steady at the Prince of Wales' Dock at Workington, and while the coal trade has been rather quieter, business on other accounts has been brisk. Fourteen cargoes of coal were shipped to the North of Ireland ports in a recent week, the aggregate tonnage being 3,985, as compared with 3,550 tons in the previous week and 3,815 tons in the corresponding week a year ago.

Vehicular Ferry Opposed.

Manchester Ship Canal Company having opposed the proposal for the provision of a vehicular ferry across the Ship Canal, Caldishead to the Partington side, which had the approval of the local authorities concerned, as well as the North Cheshire Regional Town Planning Committee, the scheme has been withdrawn from the programme of prospective developments in transport communication between Lancashire and Cheshire. In view of the inconvenience and possible delay to traffic that vehicular ferry across the waterway would create, the Ship Canal Company threatened unequivocal opposition to the proposal, and it is not surprising, therefore, to find that the Manchester Regional Town Planning Committee has decided to abandon the project.

Ribble Navigation Progress.

Reports on the progress of the Ribble navigation and works during the past twelve months were given at the annual inspection by members of the Preston Corporation on 16th June. Work on the training walls, begun 92 years ago, has been restarted, and the hope was expressed that it would be completed within the century.

Mr. J. Barron explained that all the maintenance dredging was done in the upper reaches of the river, 5½ miles nearest the dock. The average depth for 8 miles below the dock was 10-in. below sea low water, a slight improvement on last year. Below that point to the end of the training walls at 14½ miles the channel was well established and maintained itself without dredging.

In the narrowest parts of the channel at low water the width was 600-ft.—as wide as the dock—and at 13½ miles the width was 750-ft. The lowest depth below low water was 6-ft., opposite Lytham, giving a minimum depth of 33-ft. at high water of an ordinary spring tide.

Beyond the end of the training walls the deep-water course for vessels was still moving southwards, as for a number of years past; 200-ft. this year, and the tongue of sand for nearly a mile beyond the north wall, now occupied the site of the intended channel.

Extension of the training walls for 1½ miles into the sea, restarted 41 years ago, and talked about for 12 years, had been begun at last. Carried out 7 years ago, when the channel was running straight out to sea, it would have been a comparatively simple matter. Various circumstances had held it back, and they were now faced with the task of building the south wall straight across the deep channel, and at the same time keeping navigation open and unimpaired for large vessels.

The training walls were begun 92 years ago, and carried from Chain Caul at Ashton to Freckleton Pool by 1847. After a lapse of 10 years the south wall was extended for 2 miles, and nothing more was done for 25 years, when the Corporation took over. Work on the walls was carried to 14½ miles until the war stopped it. After the war, the walls were consolidated and built up to level, this work being continued till early in 1926. Now, after another rest of 6 years, the work had begun again.

Mr. J. G. Merriweather had the felicity of reporting a record for the number of vessels dealt with and tonnage—1,505 ships with a total register of 543,445 tons; including 233 foreign vessels of 330,069 tons total register. The average tonnage per vessel had increased by 229 to 1,416 tons. In 1914, there were 190 foreign vessels with an average register of 723 tons. Ocean-going tankers dealt with numbered 35, with an average tonnage of 3,735 tons; the total being 130,636 tons. They landed 109,066 tons of cargo, an average of 3,114 tons a vessel. The largest vessel to arrive in Preston laden was the "Morgenon," 442.7-ft. long, 58.8-ft. beam, 4,288 net registered tonnage. The largest drafted vessel which had yet entered the port had a draft of 22-ft. 7-in. Records were made in clearing cargoes, 1,783 tons of wood pulp being discharged in one day. Imports jumped up with an increase over last year of 85,536 tons. Motor spirit headed the list with an increase of 56,413 tons to 200,912 tons. There was now tank storage accommodation for 42,500 tons, or 12,750,000 gallons. In 1923 only 3,661 tons of petrol were imported, so that in 8 years there had been an increase of 197,251 tons. Other increases in main traffic included timber by 10,368 tons, grain by 7,512 tons, slates by 7,116 tons, cement by 2,769 tons and bitumen by 3,100 tons. Wood pulp showed a slight decrease and live stock from Dublin, affected by the foot and mouth restrictions, fell by 12,670 to 62,598.

Exports had also improved, the total of 222,212 tons showing an increase of 4,564 tons.

Income showed a decrease of £2,448, but working expenses were reduced by £9,086, and dredging maintenance cost £3,891 less than last year.

Mr. Merriweather spoke of the necessity for serious consideration of the question of providing new dock offices to centralise the staff and reduce administration costs.

Suggested Use for Old Liverpool Docks.

What Fleetwood and the other fish dock interests think of the proposal which has been discussed at Liverpool for adapting certain of the old-type docks to render them suitable for the reception of trawlers and thus attract a new industry to Merseyside is not known, but the project is one which, if proceeded with, would certainly enable some of the old docks, of which little use is now made, to be turned to good account. Discussions have recently taken place between representatives of the Liverpool Corporation Markets Committee and the Mersey Docks and Harbour Board, following which the Committee reported to the City Council that the Dock Board were in possession of all the necessary data, and thought with the Markets Committee that the time was not opportune to proceed further with the scheme.

Thus the matter came before the City Council. Mr. Thomas Dunford, a trade union official, with connections with Fleetwood, declared that the fishing industry would be one of the great industries of the future, and nothing could be more beneficial to Liverpool than to provide facilities to encourage that industry. He was told that many years ago the Dock Board refused the necessary facilities for trawlers, and even to-day trawlers that came into the port of Liverpool were handicapped. It had been said that Fleetwood might be damaged if Liverpool was developed as a fishing port. It was never in his mind that they should draw away any of Fleetwood's trade. He added that if Liverpool did not take up the fishing industry he would not be surprised if Manchester took it up. There were no facilities in Liverpool to-day for the fishing industry, although the waters of some of the docks were almost stagnant. Alderman Paris contended that the present fish market should be transferred to the line of docks, near the railways. Trawlers could land the fish there, and what was not required for Liverpool could be sent off by rail. Some time ago he asked Mr. R. D. Holt, the chairman of the Dock Board, whether it was possible to allot docks for the purposes of the fishing industry. It was suggested that the Wapping Dock and the Brunswick Dock might be very useful, as they were close to the railways. Alderman Paris went on to contend that the real opposition to the development of the fishing industry came from the railway companies, who, he suggested, preferred to bring fish to Liverpool by rail from Grimsby and Fleetwood. The chairman of the Markets Committee replied that the matter depended entirely on the Dock Board, and the Markets Committee could do nothing without the co-operation of that body. The Dock Board are against it at present.

Mr. R. D. Holt, chairman of the Mersey Docks and Harbour Board, stated the Board's attitude at the June meeting. He said negotiations had been in hand with the Liverpool Corporation since December last. Three plans were prepared, which were jointly considered and which involved the using of all or part of the Salthouse and Canning Docks as the site for the fish dock. The last meeting on the subject was held early in April this year between representatives of the Dock Board and the Corporation, and it transpired that neither side thought the present time opportune for launching out into speculative expenditure. It was then agreed to drop the question for the time being. The matter was not dead; it could always be reopened if there was any desire to do so. Speaking personally, he said, the idea of bringing fish direct to Liverpool and establishing a fishing industry at the South End is attractive, but there has not been any very great enthusiasm for this idea on the part of any branch of the fish trade.

With reference to the discussion at Liverpool to provide facilities for the docking of trawlers and a dockside fish market, a proposal now comes forward that this industry should be established at Birkenhead at the Morpeth Dock, which, having a river entrance, could be used by modern trawlers at almost any state of the tide, and in no way interfere with the cargo liners using the Great Float. An advocate of this proposal points out that there is an excellent railway service connecting with the main lines, and Birkenhead is a good centre for distribution to any part of the country. Birkenhead should be able to compete with Hull and Grimsby in this particular trade, as the Hull and Grimsby fishing grounds have been thinned with constant fishing and are unable to supply the amount of fish required. Trawlers had increased in size to enable them to go to the far-off fishing grounds in the Atlantic, to the Faroe Islands and to Iceland, and these places were no further from the Mersey than the Humber. Birkenhead has, of course, ample provision for dry docking, for painting and repairs, bunker coals, engine, deck and cabin stores, but its general suitability is another matter.

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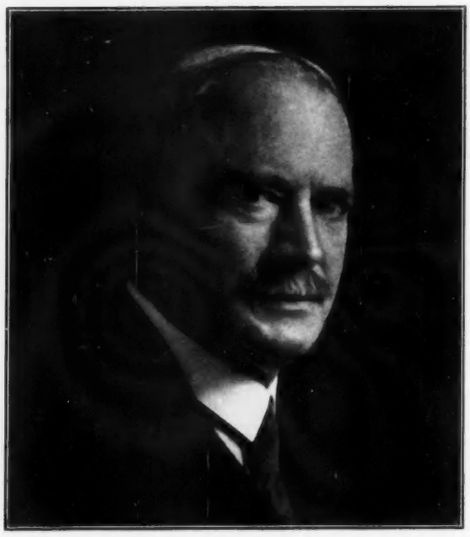
North-East Coast Notes.

Blyth Harbour Commission's Jubilee.

BLYTH HARBOUR COMMISSION celebrated its Jubilee on June 18th, and was able to look back on half-a-century's steady improvement which has raised the river from an inconsiderable shipping place to a port of prime importance on the North-East Coast, whence millions of tons of the world's best steam coal are shipped annually.



Mr. RIDLEY WARHAM
(Chairman, Blyth Harbour Commission).

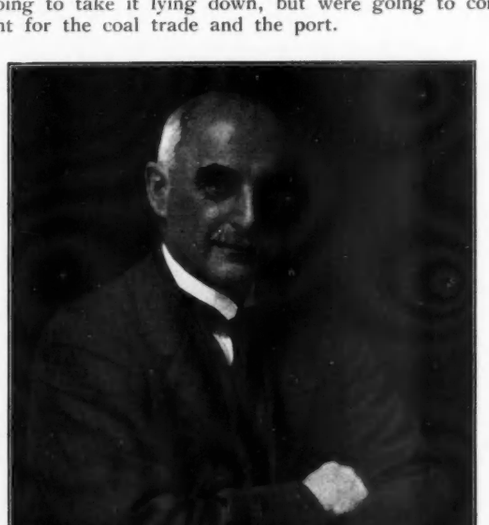
The history of the port is very interesting. Prior to 1854 the channel of the River Blyth for approximately the last mile of its course was a small natural harbour, and was the private property of Sir Matthew White Ridley. In the channel there was at low water, 2 or 3-ft. of water, with a rise and fall of tide of about 14-ft.; ships could get up the channel as far as two coaling quays. No attempt was made to improve in any way the channel until the Blyth Harbour and Dock Company was formed in 1854. In the year 1855 the coal shipments were 250,000 tons, and the quantity shipped did not reach 300,000 tons until the year 1871 and the year 1873, the latter was the record prior to the formation of the Blyth Harbour Commission. The shipments gradually decreased until in 1881 they were only 180,000, considerably less than they were 30 years ago. The somewhat chequered career of the Blyth Harbour and Dock Company came to an end in 1882. In 1877 Thomas Meik, the engineer, realised the position, and stated that unless a move forward was made the port would go back, and in 1881 another report from the engineer brought matters to a head. The shipments had fallen to a very considerable extent, and were likely to decrease as the day of the sailing ship was over, and there was insufficient depth of water to accommodate the iron ships which took their place; the depth of water in the channel at low water was only a few feet, and ships had to rely upon the 14-ft. rise of tide to get in and out of the port.

In 1882, on June 19th, the Act of Parliament constituting the Blyth Harbour Commission received Royal Assent. The most important thing which this Act did was to enable a Public Trust to borrow money necessary for improvements and the purchase of dredging plant. During the first 30 years of the Harbour Commission steady progress was made in dredging, and, from a depth of a few feet, a navigable channel having about 22-ft. throughout its length was maintained. In 1886 the coaling staiths at the south side were doubled in their capacity by adding two berths with a mineral line and sidings to supply them as the coal shipments continued to increase. With the development of the East Northumberland coal field to the north of the river additional staiths became a necessity, and in conjunction with the North Eastern Railway, the north side staiths were constructed and opened in 1896.

With a view to improving and maintaining a better depth of water at the harbour entrance the East Pier was extended and a new lighthouse constructed at the outer end. This was completed and opened in 1907. From 1912 onwards the channel was continually dredged until a navigable depth of approximately 25-ft. was made and maintained throughout its length from the harbour entrance up to the new staiths which are known as the West Staiths. The work in connection with these was started early in 1914, but the outbreak of war caused the work to be suspended and they were not completed until late in 1926. These staiths were constructed to allow a depth of water of 30-ft. L.W.O.S.T. being maintained. In 1910 two berths at the south side staiths were deepened to 30-ft. also. The remaining coal shipping berths have a depth of approximately 25 or 26-ft L.W.O.S.T., although this depth is not guaranteed.

To mark the occasion of the Jubilee, the Commission on June 18th entertained the staff and workers to luncheon and has also presented to each a souvenir booklet artistically attractive and historically interesting.

It was a notable gathering, and was attended by some 250 of the staff and employees. Mr. Ridley Warham, Chairman of the Commission, extended a very warm welcome to all present. He said that the formation of the Commission was a very important event affecting the welfare and development of the whole of the North-East of Northumberland. During the 50 years 24,500,000 tons of material had been dredged from the river and taken to sea, and 151,000,000 tons of coal had been shipped. It was that industry which had made possible the development of the harbour. The total amount of the money spent was about £1,500,000. In the 100 years prior to the formation of the Commission there had been little change. What the future might bring forth no one would venture to prophesy, but he thought he was safe in stating that the Blyth Harbour Commission would continue to flourish for many years, and would find employment for more, rather than fewer, men. Despite the bad times they had been able to maintain their position. This was in spite of the restrictions on the import of British coal by France, Germany, Belgium and Spain, which amounted in the aggregate to 8,500,000 tons of coal. These restrictions were beginning to tell heavily against them, but up to the present they had been able to get a good deal of other trade, which had kept them going. He was afraid that unless the Government did something to help them the future might not find them, fight as they might, in quite so good a position as they had been recently. They were not going to take it lying down, but were going to continue to fight for the coal trade and the port.



Mr. C. E. BALDWIN
(General Manager, Blyth Harbour Commission)

The latest figures to hand show that the efforts of the Commission are still meeting with their reward for the coal shipments are expanding even in these depressed times. For the four months ended April 30th, the shipments were:—1932, 1,722,421 tons; 1931, 1,533,797 tons; 1913, 1,518,810 tons; which indicate an increase in 1932 of 12 per cent on 1931, and 13 per cent. on 1913 figures for the four months.

North-East Coast Notes—continued

Trade of the Tyne.

The import trade of the River Tyne suffered in March as a result of the Government's new fiscal policy, stated Mr. W. A. Souter at the March meeting of the Tyne Improvement Commission. That, however, was to be expected. They must give time for the policy to find its feet, and he believed that when they examined the later returns would find that there had been an advance.

The shipments of coal and coke from the port in April amounted to 1,033,405 tons, compared with 1,175,401 tons in April, 1931. For the first four months of this year the shipments amounted to 4,408,702 tons, a decrease of 558,781 tons on the first four months of last year, and 2,039,583 tons on the corresponding period of 1913. Bunker shipments, Mr. Souter pointed out, were a satisfactory feature of the year's trade, and there was an improvement, small at present, in the trade with Scandinavia. From what he had heard of contracts already secured and under negotiation, he thought that there was some hope of recovery in that market.

The coal and coke shipments from Sunderland are still expanding, and the April return gives an increase on the same month of last year of 36,929 tons, the shipments totalling 402,381 tons. For the first four months of this year the shipments totalled 1,711,551 tons or 111,914 tons more than the figures for the previous year.

Wallasey Foreshore Works

DISCUSSING some of the difficulties encountered in the execution of the foreshore works at New Brighton, Mr. L. St. G. Wilkinson, the borough engineer of Wallasey, in a lecture, stated that in the preparation of plans for the design of the sea wall it was necessary to discover the nature of the strata and the foundation likely to be met with. Numerous borings between 30 and 40-ft. below the shore level were therefore made. These borings showed that the foundation for the wall would be quite satisfactory at varying depths of from 15 to 20-ft. below shore level.

The sea wall, of which a considerable length has now been completed may with confidence be taken as a strong and safe wall capable of lasting many years without extensive repairs. The method of reconstructing the main sea wall is, briefly, for the site of the wall for a convenient length, to be entirely enclosed from the tide, by steel sheet piling which is driven on the average about 20-ft. below shore level. After the piles are driven, timbering inside and outside the dam is commenced to give the necessary stability. This consists of heavy baulks of timber, which are bolted to steel dam, or spiked, or bolted to each other.

"This precaution is very necessary, otherwise when the dam is subjected to heavy tidal water, the movements which take place, would dislodge the timbers and there would be grave possibilities of the dam collapsing. Steel pile cut-off dams are introduced at approximately 120-ft. intervals, which not only strengthens the dam, but shuts off the tidal waters in the immediate working area. A sluice valve is introduced into this cut-off, so that in the event of tidal waters penetrating the dam, either by reason of a flaw or at very high tides washing over the top of the dam, the water could be run off through the valve in question.

"When the dam is sufficiently timbered, excavation work commences, and as the sand and clay is removed, further timbering is introduced, until at the greatest depth, there are from four to five sets of heavy timber. Excavation under certain conditions is carried out by means of ordinary labour, cranes are introduced to handle the buckets and skips, and to convey the excavated material to the place of deposit usually immediately behind the dam. This excavated material will form part of the filling required in the construction of the new promenade. As water is found immediately below the sand level, pumping has to be resorted to, and usually two pumps, with one 'stand by' are constantly at work. Pumping operations proceed night and day until the wall is constructed to a height where it becomes unnecessary."

The presence of water complicated the work considerably, as in addition to the water known as "ream water," tidal waters find their way through faulty joints and fishplates, also through fissures in the rock. Channels have to be formed and pipes and rubble drains laid to deal with this water before concreting work can commence.

"The wall on certain sections is built on red sandstone. Where the wall is built on clay, which is of a particularly good type, the foundation of the wall penetration is to a minimum depth of 2-ft. 6-in. The new scheme has its separate system of drainage, consisting of rubble and open jointed pipe drains, which discharge into a cast iron pipe. This cast iron pipe conveys the water to sea and discharges it at a point beyond the battery in a northerly direction.

"The depth of the sea wall from foundation to coping averages about 40-ft. and the thickness at the base is from 16-ft. to 20-ft. Instead of the usual iron railing fixed on the wall at footway level, the wall is carried up above the footway so as to form a seat on the promenade side facing south and a bullnose on the seaward side to deflect the waves back to the sea. The main promenade will be 130-ft. wide and that portion north of the site for bathing pool will be 60-ft. wide. Included in the present contract is a marine lake with an area of 12 acres, between the Perch Rock Battery and the existing promenade. It appears probable that the works included in Contract No. 1 (Construction of Sea Wall, Marine Lake, filling and rock rubble for promenade, and Outfall Sewer) will be completed by the end of August, 1933. This is, of course, contingent upon there being no unforeseen delays of a serious nature, caused by exceptional gales, severe frost or the like. There will then remain to be completed the concrete paving from the promenade, which cannot be commenced until the rock rubble has been laid (August, 1933), and will require twelve months for completion, and also the open air swimming bath which cannot be commenced until after the construction of the dams enclosing the site (31st December, 1932), and will require two years for completion. It will, therefore, not be possible to complete the whole of the works included in the present scheme (£440,823) before the end of 1934. The total estimated cost of the present sections of the scheme is about £440,000, and the various Government grants are equivalent to about £150,000 in cash. Some £165,000 of the expenditure is allocated to the revenue producing works and the remainder to the non-revenue producing works."

The Port of London Authority

London's Shipping.

During the week ended May 27th, 799 vessels, representing 882,217 net register tons, used the Port of London: 417 vessels (718,487 net register tons) were to and from Colonial and Foreign ports, and 382 vessels (163,730 net register tons) were engaged in coastwise traffic.

* * * *

During the week ended June 3rd, 820 vessels, representing 884,734 net register tons, used the Port of London; 425 vessels (714,825 net register tons) were to and from Colonial and foreign ports and 395 vessels (169,909 net register tons) were engaged in coastwise traffic.

* * * *

During the week ended June 10th, 927 vessels, representing 1,022,787 net register tons, used the Port of London; 465 vessels (824,997 net register tons) were to and from Colonial and foreign ports and 462 vessels (197,790 net register tons) were engaged in coastwise traffic.

* * * *

During the week ended June 17th, 1,046 vessels, representing 773,650 net register tons, used the Port of London: 433 vessels (583,757 net register tons) were to and from Colonial and Foreign Ports, and 613 vessels (189,893 net register tons) were engaged in coastwise traffic.

Tilbury Passenger Landing Stage.

Twenty-nine vessels totalling 306,180 gross register tons, used the Tilbury Passenger Landing Stage during the month of May.

Altogether 4,300 passengers were embarked or disembarked at the stage, in addition to baggage and mails.

Heavy Grain Arrivals in London.

There were heavy arrivals of bulk grain in the Port of London in early June. More than 129,000 bushels of bulk wheat, oats and barley were discharged in the Royal Docks mostly from Vancouver, B.C. At one time eleven P.L.A. floating elevators were in operation and together discharged 6,095 tons in a day. The elevator "Thomas Wiles" discharged nearly 1,000 tons in less than 8 hours.

French Harbour Matters

ACCORDING to an official announcement which has just been made, the Chamber of Commerce and Industry at Dunkirk has just put into operation the floating dry dock of 12,000 tons.

According to statistics which have been published by the Chamber of Commerce and Industry at Brest, shipping at that port during the month of May, 1932, included 86,746 tons of goods imported and exported, against 55,389 tons during April, 1932, and 60,117 tons during the month of May, 1931. During the period from January to May, 1932, shipping at Brest included 306,653 tons of goods imported and exported, against 305,984 tons during the corresponding period of 1931.

Shipping at Dieppe included, according to statistics which have been issued by the Chamber of Commerce and Industry at that port, 260,000 tons of goods imported and exported from January 1st to April 30th, 1932, against 266,118 tons during the corresponding period of 1931.

The Chamber of Commerce and Industry at Saint Nazaire has supplied the following information regarding shipping at that port during the month of May, 1932:—Arrivals, 79 ships representing 51,621 net register tons with 45,584 tons of goods, and the clearance of 81 ships representing 57,714 net register tons, carrying 10,511 tons of goods.

According to statistics, which have just been published by the Chamber of Commerce and Industry at La Rochelle (Ville et Pallice), shipping at that port during the month of May, 1932, included the import and export of 86,104 tons of goods against 89,609 tons during May, 1931. The total traffic during the first five months of 1932 included 397,680 tons against 406,600 tons in the corresponding period of 1931, with a decrease of 8,920 tons. In view of the fact that a large number of liners are a long time undertaking their operations in the La Rochelle Roads, without entering the port, the Chamber of Commerce and Industry at that port has prepared a project viewing the construction of a pier outside the present port, where the depth of water reaches from 10 to 11 metres. The pier would be 300 metres long and 60 metres wide, just off the La Pallice Roads, to be connected to the coast by a viaduct measuring 1,120 metres in length. The cost of these works would reach 134 million francs, half to be covered by the Government and half by the Chamber of Commerce and Industry of La Rochelle-Pallice.

The Chamber of Comerce and Industry at Marseilles has published the following statistics regarding trade at that port during the first five months of 1932:—

	1932	1931	1913
ARRIVALS			
No. of Ships	3,084	3,273	3,548
N.R.T.	6,059,255	6,253,804	4,266,161
Goods Carried (Tons)	1,875,356	2,150,408	2,405,203
Passengers	120,002	123,991	102,117
CLEARANCES			
No. of Ships	3,087	3,258	3,523
N.R.T.	6,093,831	6,232,409	4,289,640
Goods Carried (Tons)	778,509	974,211	1,266,251
Passengers	96,324	103,113	82,698

Both imports and exports have shown a drop in respect to 1931 and 1913. Goods imported have shown a decline of 275,052 tons and goods exported a decline of 195,702 tons in respect to the first five months of 1931. Total shipping has thus shown a drop of 470,754 tons.

It is announced that the works for the renewal of the electric fittings of the port are shortly to be started, involving an expense of 80 million francs.

The Chamber of Commerce and Industry at Marseilles has given a favourable reply to the inquiry of the Ministry of Public Works in regard to the extension of the dredging works in the dock near the Canal which runs from the port of Marseilles to the Rhone River and in the Etablissement Maritime de Caronte. The above-mentioned dock has been built in order to facilitate the manoeuvring of ships, which are using the quayage on the Caronte Canal. The works in question enable the Marseilles Harbour Board to moor in the Canal many of the ships at present laid up in the port of Marseilles, and which thus reduce the facilities of that port at the disposal of trade. The works which have been suggested by the Ministry of Public Works involve a cost of about two million francs.

Further information is available in regard to shipping at French Colonial ports during 1931. Shipping at Algerian ports, for example, during 1931 included:—

	Arrivals 1931		
	No. of Ships	Net Reg. Tons	Tons of Goods
French	3,035	5,240,102	2,336,510
Foreign	1,824	2,815,009	2,500,426
Total	4,859	8,055,111	4,836,936

	Arrivals 1930		
	No. of Ships	Net Reg. Tons	Tons of Goods
French	2,995	5,084,176	2,080,157
Foreign	1,925	3,221,676	2,410,611
Total	4,920	8,305,852	4,490,768

	Clearances 1931		
	No. of Ships	Net Reg. Tons	Tons of Goods
French	2,932	5,095,207	2,715,517
Foreign	1,689	2,510,752	2,454,942
Total	4,621	7,605,959	5,170,459

	Clearances 1930		
	No. of Ships	Net Reg. Tons	Tons of Goods
French	2,868	4,934,195	2,881,727
Foreign	2,067	3,458,699	3,537,542
Total	4,935	8,392,894	6,419,269

The total goods traffic reached in 1931 was 10,007,395 tons against 10,910,037 tons in 1930, a decline of 902,642 tons.

In order to obtain an idea of the development of shipping at Algerian ports it may be interesting to consider the following figures:—

	Arrivals and Clearances 1931		1930	
	N.R.T. Tons	Goods Tons	N.R.T. Tons	Goods Tons
Nemours	351,705	96,649	321,854	72,326
Beni-Saf	601,362	315,260	616,012	417,038
Oran	19,110,148	3,641,810	19,073,810	3,433,655
Arzew	814,826	215,888	745,124	219,060
Mostaganem ...	2,496,274	458,192	1,991,766	448,045
Algiers	14,414,258	3,219,781	14,738,574	3,145,384
Boujie	1,559,681	249,245	1,344,365	239,009
Djidjelli	470,146	19,464	480,661	44,100
Collo	115,242	3,776	117,530	2,566
Philippeville ...	2,210,272	384,955	2,095,500	340,353
Bona	4,082,156	1,323,850	5,121,479	2,420,389

There has been increase of shipping at the largest Algerian ports such as Oran and Algiers, while at the smaller ports there has been a depression all over the French Colony, and it does not appear that matters have improved in the course of the first part of 1932, though there has been some inquiry for mineral from Algerian ports. The decrease in net register tonnage arrived and cleared from Algiers is due mainly to the small number of passenger liners which have called at that port during 1931.

While no statistics are available in regard to shipping at Algerian ports during the first part of 1932, information has been published about the situation of shipping at Moroccan and Tunisian ports. According to information received from Kenitra shipping there during the month of April, 1932, included the arrival of 40 ships representing 34,103 n.r.t., which unloaded 24,652 tons of goods, and loaded 7,528 tons against 26,734 tons imported and 3,349 tons exported during the corresponding period of 1931. Total shipping during April included 32,180 tons of goods, while total trade during the first four months of 1932 included 109,772 tons, the situation remaining practically unaltered in respect to the corresponding period of 1931.

At Bizerta (Tunisia) shipping during May, 1932, has shown a slight decrease in respect to the corresponding period of 1931. Arrivals included 41 ships representing 46,764 net register tons, carrying 4,698 tons of coal, 3,907 tons of general cargo, etc., while exports included 4,800 tons of iron ore, 1,152 tons of cereals, etc. It would appear that extensive harbour enlargements are under consideration both at Bizerta and Tunis.

Manchester Ship Canal

Manchester Ship Canal Company reports that the traffic receipts for May were approximately £97,094, an increase over the amount in the corresponding month of last year of £5,469. The total for the five months of this year is £465,002, or £2,744 more than for the corresponding months of last year. The ascending tendency of the totals for the last three months is an encouraging sign. There is a heavy decline in values, at least on the traffic of January-May, 1930.

Hull and the Humber

A Check to the Humber Road Bridge Scheme.

THE revised scheme for the erection of a road bridge over the Humber to connect Hull with North Lincolnshire has received an unexpected check, a poll of the ratepayers of Hull having resulted in a substantial majority against the proposal of the Hull Corporation to proceed with the Bill before Parliament. A town's meeting was in favour of the project, but the opponents made a requisition for a poll, which after a very strongly contested discussion has confirmed their contention that public opinion is opposed to the project on the grounds of financial inexpediency and the possibility of grave danger resulting to the navigable channel of the river and the ports dependent upon its maintenance. No financial assistance being forthcoming from the Government, as originally promised, the promoters of the Bill made an arrangement with a London financial house for the issue of £2,000,000 debentures bearing interest at 5 per cent. and the terms were recently approved by the Hull Corporation, the sponsors of the Bill. Strictly speaking the promotion of the Bill having already been authorised by the citizens, a further town's meeting and poll were not necessary, but in view of the fact that the Corporation had to guarantee for ten years any deficiency between the receipts from tolls and the annual expenditure, including sinking fund and interest, and estimated at £134,000 annually, it was deemed wise to seek the formal approval of the ratepayers again. Whatever the merits of the project and the fears engendered as to the safety of the river, about which much was said on both sides, there can be no doubt that a good deal of scepticism existed as to the probability of the bridge paying its way and attracting sufficient traffic to justify an estimate of £135,000 yearly from tolls. The proposal has broken down on this, although it must be said that shipping and commercial interests instituted vigorous opposition directed mainly to show that the construction of piers in the river would be a source of danger to navigation and the river channels and serious menace to shipping using the estuary.

Opposition by the Humber Conservancy Commissioners.

The Humber Conservancy Commissioners as guardians of the river put up a stiff fight against the proposal to proceed with the Humber bridge scheme without the financial aid withdrawn by the Government. In reply to the numerous statements made by the promoters, the Conservancy Chairman (Mr. J. H. Fisher, J.P.) strongly emphasised the great risk to the navigation of the Humber and to the port of Hull and the fact that the House of Commons Committee which considered the project had said that the construction of training walls should go hand-in-hand with the construction of the bridge. Engineers for the opposition have said that it would be a hazardous proceeding and a grave danger to the channels of the river to erect the proposed bridge. Yet in spite of this the Hull Corporation was making no provision for training walls, the construction of which, it was pointed out, would occupy many years and would cost considerably more than the bridge. The Conservancy contention is that the money for those training walls would have to be found by the ratepayers of Hull or would fall on the shipping using the port in the form of dues, which would raise river charges to a prohibitive level.

Personal.

Mr. J. H. Fisher, J.P., has been re-elected chairman of the Parliamentary Committee of the Humber Conservancy Board, and Commander W. B. Clementson vice-chairman in place of Sir John Eaglesome, who has expressed a desire to be relieved of the office.

Suggested Radio Beacon at Spurn Point.

An inquiry has been addressed to the London Trinity House as to whether it is the intention of the Elder Brethren now or in the near future to establish a radio beacon at Spurn Point. This has been done in view of the desire of Trinity House that the Spurn Lightship's wireless beacon should be adapted to the new system to reduce interference between radio beacon wireless fog signals on the coast. The engineer of the Humber Conservancy Board has reported that the application of the new system would necessitate a complete rearrangement of the lightship's machinery and apparatus at a cost approaching £1,000, and expenditure the Board are anxious to avoid on a system which might not be permanent.

Decrease in Continental Trade.

A not altogether unexpected consequence of the drastic import restrictions in many Continental countries, currency difficulties, and industrial depression, combined with the tariff policy of Great Britain, has been a marked shrinkage in the trade between Hull and the near Continental ports. Sailings of regular steamers have been reduced and the volume of general merchandise handled at the docks has undergone contraction. Arising out of the same causes the export trade in Yorkshire and Derbyshire coal has shrunk, the exports from the Humber showing a substantial decline as compared with a year ago, when trade even then was much below normal. To the end of May the exports (foreign) from Hull and the sister ports of Grimsby, Immingham and Goole were 1,429,022 tons and from Boston and Lynn 130,844 tons, as compared with 1,799,502 tons and 144,788 tons. There has thus been a decline of 384,424 tons, equal to nearly 20 per cent. Though the imports of wheat and kindred cereals and oilseeds at Hull are as usual considerable, the aggregate to date is below that of a year ago, and the same has to be said of timber—from all of which it may be gathered that the port is working at much below capacity.

New Appointment for Dundee Engineer.

Mr. J. Hannay Thompson, Jr., B.Sc., A.M.I.C.E., Resident Engineer at the King George Wharf extension at Dundee Harbour, has been appointed the new Superintendent and Engineer of Granton Harbour, Edinburgh, and took up his new post on July 1st.

Mr. Thompson has had considerable engineering experience in the past few years. He was Assistant Resident Engineer on the new Tweed Bridge, Berwick; in the service of the Clyde Trustees in connection with the construction of the new Shieldhall Dock and also with the British Aluminium Company in connection with the building of a new breakwater at Burntisland.

Mr. Thompson is the son of Mr. J. Hannay Thompson, the General Manager and Engineer to the Dundee Harbour Trustees.

Isle of Man Harbours.

The Lieut.-Governor of the Isle of Man, Sir Claude Hill, K.C.S.I., C.I.E., introduced his Budget in the Tynwald Court on May 31st and succeeding days. Included in this was a sum amounting to £18,546 for harbours—general maintenance and repairs—the vote for this sum was moved by H.M. Receiver General (Mr. J. Qualtrough, M.L.C., J.P.), Chairman of the Isle of Man Harbour Commissioners and was agreed to.

The following votes for special work were also agreed to: Continue with the work of reconstructing Peel East Quay wall a sum of £2,000. Continue with the work of strengthening and widening the south side of the Victoria Pier, Douglas, £6,000. To carry out repairs to Peel Groyne £400.

In addition to the above a further sum of £50,000 was agreed to for the purpose of continuing the work of the extension of the Red Pier, Douglas, this sum will be raised by the issue of a Manx Government Loan as was done for this particular scheme last year. In connection with this work, it was stated by Mr. R. C. Cain, M.L.C., J.P., who moved this vote in the absence from the Court of the Receiver General, that it was hoped that the work of dredging would be completed during the present summer.

A perusal of the detailed estimates issued by the I.O.M. Harbour Commissioners shows that a sum amounting to £18,994 7s. 8d. is the estimated cost for maintenance and repair of the eight harbours of the island, Scarlett Quarry, and administration for the year ended 31st March, 1933, against an estimated cost of £18,277 3s. 0d. for the previous year and out of which the sum of £17,279 10s. 10d. was actually spent. In addition the estimate for the upkeep and maintenance of the Victoria Pier Buildings, Douglas, is put down at a sum of £750 against an actual expenditure last year of £680 13s. 10d. The Queen's Pier, Ramsey, £800, against an actual expenditure last year of £871 12s. 4d. and Douglas Swing Bridge £1,300 against actual last year of £1,430 7s. 2d.

Receipts.—The receipts from the several harbours during the year ended 31st March, 1932, amounted to £21,918 3s. 3d. against £20,367 1s. 8d. in the previous year; Victoria Pier Buildings, rents, etc., £1,526 17s. 0d. against £1,526 0s. 3d.; Ramsey Queen's Pier, tolls and rents £105 16s. 6d. against £143 2s. 11d. and Douglas Swing Bridge, tolls, £1,608 6s. 11d. against £1804 3s. 7d. Practically the whole of this income is earned at Douglas Harbour, where during the year ended the 31st March last a sum of £19,448 8s. 11d. was collected, made up as follows:—Rents £503 17s. 0d., licences £1,066 19s. 0d., harbour dues £3,361 6s. 10d. and passenger duty £14,516 6s. 1d., this being a sum of £2,168 18s. 1d. over and above the cost of maintenance and repair of the whole of the harbours together with Scarlett Quarry and Administration and an increase in income for the same harbour of £1,385 5s. 7d. over the previous year.

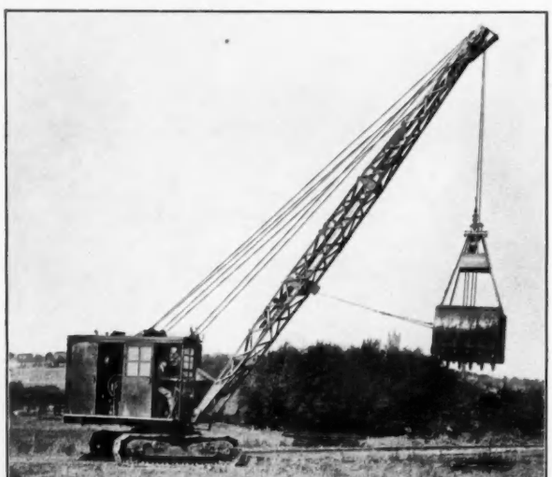
Trade Notes

Another Large Excavator and Crane Order for Ruston-Bucyrus, Ltd.

Ruston-Bucyrus, Ltd., excavator manufacturers, Lincoln, England, are busily engaged on an order for 13 machines for Russia.

Five of them are No. 4 ½-yd. Diesel shovels with several sets of grabbing equipment. The machines will incorporate all the modifications recently introduced in the "Improved" No. 4 Ruston-Bucyrus ½-yd. excavator. Nearly 1,000 No. 4's have now been sold since the introduction of their first machine of this size and type.

The remaining eight machines are special caterpillar mounted



Diesel grabbing cranes and cranes, one of which is illustrated herewith The machines are fitted with light-weight grabs of 2 cu. yd. capacity for handling coal, and as cranes are designed to handle 3 tons at 26-ft. radius or 6 tons at 15-ft.

The carriage or framing of the machines is of cast steel.

All high speed and continuously running shafts, including the drum shafts, are mounted on ball bearings.

The steering of the machine and the operation of the caterpillar brakes and clutches are all under the direct control of the operator.

The main transmission gears, gears for slewing and travelling, derricking gear in addition to having machine-cut teeth are fully enclosed and run in oil.

The Diesel engines for all the 13 machines are made by Ruston and Hornsby, Ltd., and have been specially designed for excavator work.

W. H. Allen, Sons and Co., Ltd., Bedford.

The Bedford Works of W. H. Allen, Sons and Co., Ltd., occupy an area of over 30 acres, of which 12 acres were first opened up in 1893. The origin of the Company dates back to 1880, when the founder and late chairman, Mr. W. H. Allen, started manufacturing in York Street, Lambeth. The work of the firm increased so rapidly that, despite continual enlargements, the original London site became inadequate, and it was decided to move to the present site at Bedford. Since that time constant developments and additions to the range of manufactures have necessitated expanding the size of the works to present coverage of 30 acres.

The original product of the firm was the "Conqueror" pump, which name is well known throughout the engineering world. The success of the earlier efforts of the Company in the pump field soon determined it to extend the range of products, hence came the now well-known Allen steam engines of the open and closed types. In addition, as early as 1883, the Company undertook the construction of D.C. electrical plant and it was largely due to this early combination of mechanical and electrical engineering that the Company is now so prominent and well known. The present field of activities and manufactures of the Company are probably as varied as any other concern of the same size in this country.

Since the early days, W. H. Allen, Sons and Co., Ltd., have given special attention to plant for marine service, and Allen auxiliaries are to be found on all types and sizes of vessels in His Majesty's Service as well as in many foreign Navies and the Mercantile Marine.

Special attention has also been paid to machinery for land work and this side of the business has become increasingly prominent. The present range of manufactures is especially adaptable for irrigation and drainage schemes, central stations, factories, mills, railways, etc., as well as for propulsion and all auxiliary applications aboard ship.

During the past decade, the oil engine business of W. H. Allen, Sons and Co., Ltd., has developed at a phenomenal rate, and, at the present time, both the design and manufacture of these engines are carried out on extensive lines, and the firm is capable of meeting fully the needs of oil engines for trail traction service, the propulsion of ships, including trawlers, tugs, fishing vessels, ship's lifeboats, etc., pumping installations, textile mills, industrial undertakings and for every type of installation.

W. H. Allen, Sons and Co., Ltd., are manufacturers of the well-known "Conqueror" centrifugal pumps for docks, and these have been supplied to the principal ports in the world.

Dockyard Expense Accounts, 1930

Report of the Comptroller and Auditor General (G. C. Upcott) upon the Dockyard Expense and Manufacturing Accounts for the year ended March 31st, 1931; prepared and submitted for the information of the House of Commons in pursuance of Section 5 of the Exchequer and Audit Departments Act, 1921:—

Outcome of Account.

The programme of shipbuilding, etc., presented to Parliament with the Navy Estimates for 1930, provided for an expenditure of £14,958,452. The two Supplementary Estimates, referred to in paragraphs 1 and 2 of my Report on the Navy Account, provided in addition for certain new construction not included in the original estimates and for the extra cost due to greater progress on contract work, modified by savings on labour and materials.

It will be seen from the General Summary on page 11 that the actual expenditure in the year was £15,226,388, and was thus £267,936 more than the original estimate.

New System of Expense Accounting.

In the Report on the Accounts last year my predecessor referred to the changes involved in the revised accounting system inaugurated at Portsmouth as the result of the recommendations made by the Committee presided over by Mr. R. S. Hilton. The new system was in full operation at that yard in 1930, and therefore, as indicated last year, the account embodies figures arrived at partly by the old and partly by the new systems. This position must necessarily continue during the period of transition, the next stage of which was reached with the partial operation of the new scheme at Devonport and Malta during 1931. At April 1st, 1932, it was completely adopted at these yards and the first stage is being introduced at Chatham and Sheerness.

Expenditure on New Construction, &c., 1925 to 1930.

The general course of naval expenditure from 1925, as recorded in the Dockyard Expense Accounts, may be seen from the following table showing the direct charges under the principal heads of account (omitting 000's):—

New Construction.	1925 £	1926 £	1927 £	1928 £	1929 £	1930 £
Dockyard Built ...	2,309	3,540	2,926	2,716	1,506	1,850
Contract Built	4,389	3,986	5,930	5,850	5,528	3,522
Small Vessels	74	37	571	309	16	24
Repairs, Alterations, etc. ...	5,950	5,931	5,833	5,094	5,059	4,172
Stores for Maintenance ...	1,491	1,400	1,394	1,374	1,395	1,224

The above figures include the following expenditure on dockyard labour:—

	1925 £	1926 £	1927 £	1928 £	1929 £	1930 £
New Construction ...	1,102	904	778	757	536	693
Repairs, Alterations, etc.	4,129	4,042	3,671	3,480	3,283	2,821

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Canadian Notes

Grain Handling at Churchill, Manitoba.

Grain is now moving to Churchill, Manitoba, preparatory to despatch overseas in July, as the first commercial shipment by the Hudson Bay route following the successful test shipments undertaken in September, 1931. The complete shipment, comprising 2,000,000 bushels of wheat, has already been purchased and wili be handled by the new Dominion Government elevator at Churchill.

According to a statement issued by Mr. L. C. Brouillette, President of the Saskatchewan Wheat Pool, the grain has been purchased from the Pool by the Continental Grain Company of New York, which maintains offices at Winnipeg. The wheat will be supplied by the Saskatchewan Pool Elevators, Ltd., and the Manitoba Pool Elevators, Ltd., most of it being obtained from the first-named.

The wheat, which will be drawn from numerous points in Saskatchewan, will grade mostly from No. 1 to No. 4 Northern, and arrangements are being made with the Board of Grain Commissioners to inspect the grain on its arrival at Churchill. The exporters are making their own arrangements to provide vessels for the shipment, the volume of which is equivalent to eight cargoes of the size shipped last year by the s.s. " Farnworth " and s.s. " Warkworth " of the Dalgleish Line. The quantity named also represents the storage capacity of the elevator at Churchill, apart from the workhouse capacity of 500,000 bushels.

In view of the absence, as yet, of established trade connections via the Hudson Bay route, the Dominion Government, according to the " Financial Times " (Montreal), will make no charge for handling grain at Churchill this season. The Government will also pay the railway stop-over charge of one cent per 100 lbs. on grain handled at the Moose Jaw and Saskatoon elevators. Storage charges at Churchill will be fixed at one-sixtieth of a cent per bushel per day, the permit system associated with Pacific Coast ports being also operated at the Hudson Bay port.

Grain handling facilities at Churchill are estimated by the Board of Grain Commissioners to have, in a normal season, a capacity for shipping some 28,000,000 bushels in a continuous flow. It is necessary at the outset, in order to ensure this steady flow of grain through Churchill, to take steps to obviate speculative losses and to build up experience in both freight and insurance which will result in the establishment of a grain market at the port. It is the hope of the authorities that at least 10,000,000 bushels may be handled during the coming season. Marine insurance rates on cargoes routed by the Hudson Bay port may also be reduced as the result of negotiations with the interests concerned.

A statement at Saskatoon recently by the Minister of Agriculture of Saskatchewan, suggests that a trial shipment of 400 head of cattle and large quantities of eggs, butter, lard, and cured meats may be despatched to Europe from Churchill this season, a suitable vessel having already been secured.

Canal Traffic in Canada.

The Dominion Bureau of Statistics at Ottawa in its " Canal Statistics for the Year ended December 31st, 1931," shows that navigation during that year opened earlier than in 1930, but there was a decrease of 39 per cent. in the traffic passing through the Sault Ste. Marie Canals, the total amounting to 44,614,168 tons. The Welland Ship Canal handled during the season 2,457 vessels downbound and 2,373 vessels upbound. The freight tonnage downbound totalled 6,104,210 tons, whilst upbound the tonnage was 697,360. Between November 19th, 1930, and June 15th, 1931, St. Lawrence canal-sized boats up to 261-ft. in length with a maximum draught of 18-ft. were allowed through the new canal, whilst on June 15th, 1931, the maximum length permitted was increased to 450-ft. and to 550-ft. on June 27th. With the opening of navigation in 1932, the maximum draught permitted will be increased to 20-ft., but as the draught permitted through the St. Mary's River at Sault Ste. Marie is approximately 18-ft., the greater draught was not very important during the past season. When completed the canal will have a depth of 30-ft. in the locks and will permit draughts of 25-ft. in the stretches between the locks. Anticipating the opening of the canal last year, docks and other facilities were constructed to handle iron ore at Hamilton, and during the year 255,814 tons were shipped by boat to that port. The construction of grain elevators at Toronto, Prescott and Kingston increased the traffic to those ports.

Bombay Port Trust

At the meeting of the trustees of the Port of Bombay held on 18th May, 1932, the following were the main items of business disposed of:—

A government notification appointing Mr. M. W. Brayshay, a member of the Board of Trustees *vice* Sir Ernest Jackson, Kt., C.I.E., retired, and the election by the Chamber of Commerce of Mr. R. C. Lowndes as a trustee during the absence on leave of Mr. E. C. Reid, were recorded.

The following expenditure estimates were sanctioned:—

Rs. 54,115 for renewing the buckets and links of the bucket ladder dredger " Barbus."

Rs. 39,108 for renewing the roof sheets of sheds Nos. B (southern half), D and J (6 bays) at grain depot.

Rs. 19,021 for extending the road, water and oil pipe lines to a plot of land at Wadala recently leased to the Western India Oil Distributing Co. for a petrol installation.

Rs. 3,050 for renewing the woodwork of the Port Trust Dispensary at Prince's Dock.

* * * *

At a meeting of the trustees of the Port of Bombay held on 31st May, 1932, the following were the main items of business disposed of:—

The Board accepted the tenders of Messrs. Richardson and Cruddas and A. Hatimbhoy and Co., aggregating Rs. 14,300 for supply of corrugated iron sheets and ridging required for re-roofing B Shed, Grain Depot.

Consequent on the communal disturbances in the city, which caused a practical suspension of deliveries of cargo at the docks and bunders, the Board declared Monday, the 16th May, to Sunday, the 22nd May (both days inclusive) as *dies non* for the purpose of calculating extra fees leviable on import cargo landed in the docks and bunders.

To cope with the heavy accumulation of American cotton in the docks, due to the cessation of deliveries during the period of the disturbances, it was decided, in consultation with the Fire Insurance Association, to reserve as a temporary measure the Sales Warehouse, Alexandra Dock, and E Shed and Chupra, Prince's Dock, as additional storage accommodation for American cotton.

The following expenditure estimates were sanctioned:—

(1) Rs. 5,443 for renewing the flooring of the east gallery of K Shed, Prince's Dock.

(2) Rs 4,250 for purchasing a second-hand lightning stone-crusher and electric motor for use at the Anik Quarry.

* * * *

Vessels, other than ferry steamers, hired transports, Government vessels and country craft, which entered and left the Port of Bombay:—

	1931 Quarter ended 31st March		1932 Quarter ended 31st March	
	Number	Net register Tonnage	Number	Net register Tonnage
(a) ENTERED:—				
Vessels engaged in foreign trade ...	244	998,034	223	984,699
Vessels engaged in coasting trade ...	652	526,186	652	566,969
Total from 1st April to 31st March ...	2,881	5,163,851	2,819	5,250,077
(b) CLEARED:—				
Vessels engaged in foreign trade ...	193	806,944	179	854,522
Vessels engaged in coasting trade ...	694	727,152	692	709,504
Total from 1st April to 31st March ...	2,845	5,124,687	2,822	5,284,116

Near Eastern Port Matters

ACCORDING to statistics, which have been published by the Statistique Générale de la Grèce, shipping at Greek ports during the first four months of 1932 included the arrival of 961 vessels representing 1,692,738 net register tons against 998 ships and 1,730,119 net register tons in the corresponding period of 1931, and the clearance of 643 ships representing 1,249,927 net register tons against 713 ships and 1,354,687 net register tons. There has been a general decrease in shipping in Greece, and it may be interesting to examine the following figures regarding the distribution of the above-mentioned trade in respect to the various countries from, and to, which the ships arrived and cleared:—

	1932				1931			
	Arrivals		Clearances		Arrivals		Clearances	
	No.	N.R.T.	No.	N.R.T.	No.	N.R.T.	No.	N.R.T.
Egypt ...	104	215,443	79	141,846	105	196,004	79	152,257
Bulgaria ...	11	10,701	14	20,466	13	9,064	20	26,352
France ...	48	102,210	44	104,899	61	121,962	54	95,393
Germany ...	22	33,005	22	28,814	26	41,574	25	34,078
Jugoslavia ...	23	14,734	17	21,852	28	32,910	7	14,256
U.S.A. ...	28	192,654	17	121,403	27	174,601	20	118,676
Italy	204	399,495	135	290,846	226	413,004	190	338,271
United Kingdom	57	93,696	40	54,184	53	99,203	42	58,893
Roumania ...	132	178,091	44	71,735	63	93,769	34	54,885
Turkey ...	163	189,724	72	167,485	192	215,615	74	195,734
Other Countries	169	263,045	159	226,397	204	332,413	168	265,892

With the exception of Egypt, the United States of America and Roumania, shipping from and to the various countries has decreased at Greek ports. Even shipping to Egypt has decreased, while shipping to Jugoslavian ports has increased. Many ships in transit through Eastern Mediterranean waters have ceased calling at Greek ports.

It may be interesting also to consider the share of the various leading flags at Greek ports as outlined in the following figures:

	Arrivals				Clearances			
	1932		1931		1932		1931	
	No.	N.R.T.	No.	N.R.T.	No.	N.R.T.	No.	N.R.T.
Greek ...	267	264,604	296	250,359	80	71,561	117	115,934
American ...	11	38,312	10	33,982	10	32,999	9	29,656
British ...	80	176,829	82	195,464	48	68,696	62	98,956
Dutch ...	22	43,704	20	43,190	12	17,737	16	18,327
French ...	40	126,612	42	138,641	34	123,870	39	133,359
German ...	32	56,269	33	70,649	26	58,532	29	64,611
Italian ...	296	695,763	300	680,334	254	586,281	282	638,787
Roumanian ...	43	50,837	28	32,565	39	48,387	28	35,760

The Italian flag maintains its predominant position, and the increased tonnage in the arrivals is due above all to the fact that the Lloyd Triestino has employed larger ships on the express service to Greece and Turkey. In this increase follows the Roumanian, the American and the Dutch flags, but the British flag occupies second place immediately after the Italian flag, and before the French flag. The fact that the number of Greek ships which cleared from Greek ports has shown a big drop in 1932 goes to show the always increasing volume of tonnage laid up, tonnage arrived having instead increased.

Shipping at Pireaus has shown—during the period under review—an increase. As a matter of fact during the period from January to April, 1932, 534 ships representing 1,113,342 net register tons against 549 ships and 1,085,407 net register tons in the January-April period of 1931 arrived at Pireaus, and the clearances from that port included 351 ships representing 736,267 net register tons against 348 ships representing 726,307 net register tons.

The position of the various leading flags in the trade of this port may be summarized as follows:—

PIREAUS	Arrivals				Clearances			
	1932		1931		1932		1931	
	No.	N.R.T.	No.	N.R.T.	No.	N.R.T.	No.	N.R.T.
Greek ...	131	153,557	167	180,789	51	45,681	64	67,344
American ...	11	38,312	10	33,982	2	6,794	1	3,119
British ...	51	135,467	59	149,718	17	31,910	22	39,792
Dutch ...	13	34,840	7	24,253	1	1,561	1	628
French ...	34	121,653	41	138,456	33	121,683	37	121,498
German ...	16	20,849	22	31,857	6	6,554	4	5,333
Italian ...	153	382,853	122	299,983	128	304,356	122	288,627
Roumanian ...	40	48,495	26	31,865	36	46,035	26	32,856

The American, Dutch, Italian and Roumanian flags have increased their participation in arrivals at Pireaus, while the American, Dutch, French, German, Italian and Roumanian flags have increased their share in clearances from the port of Pireaus. It should be noted that the British flag has decreased its share in shipping at Pireaus though trade with the United Kingdom has increased, but its position in second place among foreign flags remained unaltered.

Shipping at Salonika, during the period from January 1st to April 30th, 1932, included the arrival of 59 ships representing 82,611 net register tons and the clearance of 50 ships representing 89,201 net register tons, against 55 ships and 81,273 net register tons arrived and 82 ships and 108,126 net register tons cleared during the corresponding period of 1931. As a whole, shipping at Salonika has shown a decrease. If the details of trade are examined it will be seen that arrivals from Roumania (oil), Great Britain and Germany have increased, while arrivals from Holland and Italy have decreased. Only clearances to the United States of America have increased. The American Export Lines' ships have loaded more tobacco at Salonika compared to previous years. It may be interesting to consider the following figures regarding the leading foreign flags trading at that port:—

SALONIKA	Arrivals				Clearances			
	1932		1931		1932		1931	
	No.	N.R.T.	No.	N.R.T.	No.	N.R.T.	No.	N.R.T.
Greek ...	23	27,805	11	12,368	5	11,616	7	7,177
American ...	—	—	—	—	3	10,281	3	9,644
British ...	9	15,416	5	12,838	10	15,930	12	20,973
Dutch ...	2	2,062	5	8,000	—	—	—	—
French ...	1	185	1	185	—	—	—	—
German ...	3	5,521	2	3,701	1	1,685	5	7,514
Italian ...	7	16,413	15	27,786	12	21,139	21	42,537
Roumanian ...	3	2,342	2	700	—	—	—	—

Shipping at Patrass included, during the period from January 1st to April 30th, 1932, the arrival of 69 ships representing 153,901 net register tons and the clearance of 30 ships and 129,949 net register tons, against 97 ships and 223,546 net register tons arrived and 40 ships and 174,808 net register tons cleared during the corresponding period of 1931. Patrass occupies during the first part of 1932 second place among Greek ports, as far as the number of ships calling and their tonnage is concerned, coming immediately after Pireaus, and before Corfu and Salonika. However, figures for the first four months of 1932 are showing a drop in every direction with the exception of Great Britain, which has shown an increase.

An idea of the leading foreign countries' participation in shipping at Patrass may be had from the following figures:—

PATRASS	Arrivals				Clearances			
	1932		1931		1932		1931	
	No.	N.R.T.	No.	N.R.T.	No.	N.R.T.	No.	N.R.T.
Greek ...	4	2,827	6	9,706	—	—	4	16,089
American ...	—	—	—	—	3	9,750	1	3,074
British ...	8	13,879	6	8,456	11	16,067	8	10,444
Dutch ...	4	3,010	5	6,760	3	4,013	—	—
German ...	5	6,581	—	—	1	790	2	2,441
Italian ...	25	112,791	43	162,582	12	99,329	23	140,595

The Jugoslav Government is paying considerable attention to the efficiency of the port of Split, where a large new oil station has recently been built. Each reservoir has a capacity of 10,000 tons, and a pumping station is provided for the direct unloading of oil, gasoline, etc., from tankers into reservoirs.

According to statistics which have just been published, shipping at Rhodes during 1931 included the arrivals and clearances of 828,500 net register tons of merchant shipping against 740,500 net register tons during 1930. The Royal Italian Governor for the Aegean Islands has taken up the question of the enlargement of the Port of Rhodes in order to enable large ships to anchor alongside.

The Chamber of Commerce and Industry of Adalia (Turkey) has taken up the question of the construction of a new port there, where the quayage at present does not exceed 200 metres at a depth of 2 metres, so that unloading has to be carried out in the fairway, and this means a continual hindrance, taking into consideration the growing importance of this harbour as a transit centre for Turkish exports which have grown from 2,949 tons in 1924, to 16,435 tons in 1925, 18,211 tons in 1929, 21,775 tons in 1930, and 30,000 tons in 1931. Though imports have not shown such speedy progress, they were in 1931 about three times as large as in 1924, having increased from 2,514 tons to 7,619 tons in 1931. It should also be noted that from the point of view of storage facilities the situation of the port of Adalia is very unsatisfactory, and that only 15,000 square metres of warehouse space exists at present, while a larger area would be necessary in view of the fact that the bulk of exports from Adalia consists of perishable goods.

The question of the transit of oil from Mesopotamia and Irak, through Eastern Mediterranean ports, represents to-day the aim of the various ports situated in that part of the world, as, in addition to Mersina (Turkey), Haifa (Palestine) and Alexandria (Egypt) also Alexandretta (Syria) is following with interest the development of the situation of the oil problem in Mesopotamia and Irak, since officials of the Syrian port are considering it as the most suitable sea outlet through which to convey the pipeline from Mossul. A scheme has been worked out for the construction of an oil dock at Alexandretta, with appropriate facilities to enable direct unloading and loading of steamers, in order to be ready for the day when the problem of the transportation of oil from Asia is settled. Inquiries have been made in Paris in order to ascertain whether the French Government would financially support the project.